

Gender in Physics day in the Netherlands



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On November 1st, 2016 almost 60 representatives of the physics community in the Netherlands participated in the GENERA¹ *Gender in Physics day* in the Netherlands – organised by the Dutch FOM funding agency. It was the first of a series of *Gender in Physics days* in Europe.

The aim of the event was three-fold: to present GENERA and its objectives to the Dutch physics community; to review and evaluate the performance of existing programmes for women in physics research; and to formulate recommendations for improvement and for future Gender Equality Plans for physics in the Netherlands.

Here we report the results of the event with an overview of existing programmes for women in physics in the Netherlands and in total 22 recommendations for future Gender Equality Plans for physics.

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Introduction

FOM [1] is a beneficiary partner in the GENERA project, a Horizon 2020 project aiming at a contribution to sustainable gender equity in the physics research community in Europe [2]

The GENERA Consortium comprises 12 beneficiary partners in 10 different countries and several associated and observatory partners; among them the international organisations CERN and ESO. It includes a considerable representation of female physicists, active in their careers at different levels, thus ensuring firm connection with the often isolated women in physics research.

To achieve its objectives, GENERA will foster institutional and cultural change in the participating organisations and research institutes through the design, implementation and monitoring of evidence based Gender Equality Plans (GEPs) customised to circumstances and needs of the physics research community at the national and European level. A GEP comprises a set of coherent actions designed to identify and address gender bias and monitor performance and progress during its implementation [3].

For the work in the project, GENERA has defined its *Fields of Action* [4]. The customised GEPs involve systematic examination of selection and decision-making processes to identify possible source of gender bias in the research organisations. For this, GENERA will engage further physicists active in various institutions to benchmark and monitor the effectiveness of already active and previously proposed measures and the ones which will be proposed by GENERA. The end goal is to create a sustainable European network for monitoring the gender balance in physics research and exchange of best practices to open up more opportunities for women for a successful career in physics research and allow physics research in Europe to benefit from the greater presence of talented women at all levels. In the GENERA project, FOM is the leading partner in setting up such a network.

One of the tools GENERA uses to achieve its objectives is the organisation of national *Gender-in-Physics days*. The aim of the days is to present the GENERA project to the national physics community and to analyse the implementation of activities towards gender equality identifying gaps, barriers, as well as best practices. The *Gender in Physics days* are organised by the national GENERA partners involving directly various levels of participants from junior and senior researchers to management level personnel, policy makers and other stakeholders. The *Gender in Physics days* are an important tool for creating firm support for the efforts in the physics community needed to improve the gender balance in physics research, in particular at the national level. They also offer the opportunity to closely monitor the acceptance and support of Gender Equality Plans in the national physics community.

Here we report the results of the *Gender in Physics day* organised in the Netherlands on 1 November 2016. The report is intended as a reference file. It follows the structure of the programme of the event with first an overview of the information shared during the plenary sessions, where possible extended with references to the source of the information. This is followed by a report of recommendations formulated in discussions in four parallel workshops. Organisational details can be found in the appendices.



1. The *Gender in Physics day* in the Netherlands

In the Netherlands, FOM organised the first GENERA *Gender in Physics day* on 1 November 2016 in Amersfoort². Almost 60 representatives from every level of the physics community in the Netherlands actively participated in the event. Among them scientific and HR management and senior and early-career physicists of both the FOM organization and its research institutes and from University physics departments as well as representatives of the Netherlands Research Organisation [5], the Netherlands Physical Society [6] and the GENERA project.

The *Gender in Physics day* was the first opportunity to introduce the GENERA project to the Dutch physics community and to make the connection between the objectives of GENERA and the situation in the Netherlands. In a plenary session, the positive action programs for women at FOM, fellowship programmes for women at the universities and NWO and the activities of the Dutch Network of Women Professors [7] were reviewed. In addition, experiences gained by the Department of Physics of Imperial College in London [8] with the recognitions for gender policy of Project Juno [9] of the Institute of Physics and the Athena SWAN programme [10] of the Equality Challenge Unit in the UK were shared. Pitfalls in recruitment of talented women in particular related to the construction of *excellence* were introduced. In the sections below details of the presented material are described.

The plenary session was followed by four parallel discussion workshop sessions, which were assigned four different perspectives for discussion: Science management, HR management, Senior physics researchers at permanent positions and Early-career physicists at flexible, non-permanent positions. Prior to the meeting, the chairs of each workshops prepared questions and discussion items³. In each workshop recommendations were formulated for future Gender Equality Plans in physics in the Netherlands.

The day was closed with a panel discussion about a few statements related to possible measures in a Gender Equality Plans for physics.

² See Appendix I for the programme of the *Gender in Physics day*.

³ See Appendix II for details about discussion items in the workshop sessions.

2. Fellowship programmes in the Netherlands

At several universities in the Netherlands, fellowship programmes have been implemented with the objective to attract international talented women scientists for tenure-track positions. Here we summarise the programmes that were presented at the GinNL day. We realise that this summary is not exhaustive.

2.1 Rosalind Franklin Fellowships

The Rosalind Franklin Fellowship [11] was initiated by the Faculty of Mathematics and Natural Sciences of the University of Groningen in 2002 and is running at the University as a whole since 2007. The programme offers successful applicants a tenure-track assistant professor position; the opportunity to expand or develop their own research; and a PhD candidate. Initially, Fellows are appointed as assistant professor; after a period of 4-5 years and provided a positive assessment, promotion to associated professor with tenure follows. At the end of a further 4-7 year period and provided a positive assessment promotion to the position of full professor is possible.

Each programme application rounds attract more than 100 applications (last round 170). In five rounds since 2003, at the Faculty of Mathematics and Natural Sciences of the University of Groningen a total of 21 Fellows has been appointed, among these 9 in physics and 2 in astronomy. Of these last 11 Fellows, 5 were promoted to a tenured position at RUG as full professor or associated professor, 2 left for a tenured position elsewhere and 4 have not received tenure yet since their tenure-track period has not yet come to an end. Since 2002, the Rosalind Franklin Fellowship programme has doubled the number of women physicists at the faculty in permanent positions.

2.2 Carolina MacGillavry Fellowships

The Carolina MacGillavry Fellowship programme [12] of the Science Faculty of the University of Amsterdam is similar to the Rosalind Franklin programme. In 2013 it attracted 217 applications for six positions. In two rounds in 2010 and 2013 in total nine Fellowships were granted, among them two physicists and one astronomer. Of these last three Fellows, one has now a permanent position. The other two are still in their tenure-track period. The three Fellows constitute about 35% of the staff of women physicists and astronomers; the MacGillavry Fellowship programme boosted the percentage women in the staff from 7.7% in 2009 to 13.3% in 2016.

2.3 Other University Fellowship programmes

Similar programmes have been implemented at the Radboud University with the Joliot-Curie Fellowship [13] – only science; one round since 2011 – and the Christine Mohrmann Fellowship [14], a university wide programme with its first round in 2016. At University of Groningen, the university wide programme Johanna Westerdijk Fellowship [15], with a first round in 2013; at Delft University Fellowship [16] with two rounds since 2011; and at Twente University, the UTWist Fellowship [17] with one round since 2015 with 100 applications for four positions. During the workshop sessions these programmes were generally assessed positively, by all participants.

2.4 The WISE programme for NOW Institutes

Recently, the NWO science funding agency launched the WISE programme [18] for female scientists offering the opportunity to develop or expand their own research group at one of the nine NWO institutes. Among these institutes, the ARCNL, AMOLF, DIFFER and Nikhef physics research institutes. WISE will provide 20 tenure track positions in five years; the position provides the perspective of a full staff position within five years. The selection of the first Fellows is in progress.

Programme	Organisation	Since	Science Faculty only	University wide
Rosalind Franklin	RUG	2002	2002-2007	Since 2007
Joliot-Curie	RU	2011	Y	
Caroline MacGillavry	UvA	2013	Y	
Westerdijk	UU	2013	Y	
Delft Technology	TUD	2011		Y
UTwist3	UT	2015		
Christine Mohrmann	RU	2016		Y
WISE	NWO/Institutes	2016		

Table 1. Overview of tenure track fellowship programmes for women in the Netherlands.

3. The FOM/f stimulation programme

In 1999, after an extensive round of consultation with women physicists, FOM implemented the FOM/f stimulation programme [19]. It comprises three instruments to foster a larger number of women in physics research in the Netherlands: individual positions for postdocs, bridging grants, the biannual Minerva prize and a biannual physics symposium for women only.

3.1 Individual postdoc positions

The FOM/f individual positions for postdocs are intended for women who wish to develop a long-term career in physics in the Netherlands. FOM funds a postdoc position for a maximum of three years spread over a period of at most five years. In order to be eligible, the applicant has to organise for herself a period of one to two years in a research group abroad in conjunction with her research (not paid by FOM) which she can choose to plan before or after the period funded by FOM. In this way, women are offered more control over her career at a crucial and vulnerable point, enabling them to develop a solid position for the future.

3.2 Bridging grants

FOM/f bridging grants are intended to support faculties and research institutes during the appointment of a woman to a tenured position. FOM contributes for a maximum of five years. The application must be submitted by and at the request of the dean or institute director. The dean must guarantee that the university can assume payment of the salary costs of the woman concerned within five years. Examples of a bridging grant are a contribution to a tenured appointment as an assistant or associate professor (possibly after being employed at a foreign university) or a financing of the difference in salary between an associate professor and a professor.

3.3 Minerva prize

In order to promote visibility of female physicists in the Netherlands, the biannual Minerva Prize is awarded to a female writer of the best physics publication. The first prize was awarded in 2000; a total of 10 women has been awarded since. With an average of about 30 submissions, the competition for the prize is considerable. The prize comprises a bronze statuette and a payment of 5000€. The awarding ceremony takes place at the yearly Physics@FOM conference for an audience of about 1600 participants. The winner is invited for a plenary talk at the yearly Fysica conference of the Netherlands Physical Society (NNV).

3.4 FOM/f symposium

The biannual FOM/f Symposium is for female physicists only. The Symposium offers an attractive physics program, attended by 100-150 women physicists with parallel workshops to further improve other skills than physics for a successful career. FOM has been organising the biannual FOM/f Symposium for female physicist for many years. The last symposium took place in 2014. It is now part of the *'Insight out'* conference for women in science of NWO.

3.5 FOM/f budget

The annual budget of the FOM/f programme is about 500 k€. In the period 1999-2016, a total of 39 applications (about 50/50 individual postdoc positions and bridging grants) were funded. Of

these 39 laureates, 10 are still consuming the grant. Of the remaining 29, 25 (86%) have a permanent position in academia; 4 laureates decided for a career elsewhere; ; 11 laureates (30%) are now physics professor.

3.6 Transition to NWO

From January 1st, 2017, the FOM organisation will cease to exist and its tasks will be transferred to the new NWO organisation, the organisation for Dutch Scientific Research. At the GiPNL day is was not yet decided how the three instruments of the FOM/f programme would land in the new NWO organisation, except for the FOM/f symposium that will continue integrated in the NWO 'Insight out' conference for women in science.

4. LNVH – The Dutch Network of Women Professors

The Dutch Network for Women Professors (LNVH) is a network of more than 1000 female professors and associate professors in the Netherlands [7]. Informally, the network set off in the nineties; since 2001 it was formally founded with the objective to promote gender equality within the academic community. The LNVH acts as a centre of knowledge and expertise with a monitor, reports; as a lobby organisation; and as a network and platform for (associate) professors and for HR advisors.

4.1 The LNVH Monitor

An important instrument is the regular LNVH monitor about the status quo of the number of women and their position in Dutch academia. The Monitor 2015 [20] shows an increase to 17.1% in the percentage of women in professorship-fte. Also the percentage women in associated and assistant professor positions increased since 2013. Nevertheless, compared to other European countries, the position of the Netherlands in the ranking remained the same in the ranks of the last four. Currently, the number of talented women in associated professor positions is sufficiently large to accelerate the appointment of women in professorship positions to replace retirement of current professors. However, if the increase of the number of women in professor positions will not change a 50/50 distribution between men and women will only be reached by 2055.

The LNVH use the Glass Ceiling Index (GPI) as a measure of the throughput of women to higher functional categories. It is the ratio of the number of women in a functional category over the number of women in the adjacent higher functional category. The GPI is equal to 1.0 if the percentage women in two subsequent functional categories is the same. The GPI is larger than 1.0 if women are underrepresented at the higher level functional category. The higher the GPI the lower the throughput of women to the higher functional category. In 2014, for the first time the GPI for the transition of assistant professor to associated professor (1.4) is lower than the GPI for the transition from associated professor to professor (1.5). The latter GPI did not change since 2007.

5. Project JUNO and Athena SWAN in the UK

Project JUNO of the Institute of Physics in the UK [9] recognises and rewards physics departments that can demonstrate they have taken action to address the under-representation of women in university physics and to encourage better practice for both women and men. In order to be awarded, physics departments submit an application for public recognition by IoP for their contribution to increasing the representation of women in physics. Assessment of the application includes a site visit. After three years a JUNO award must be renewed.

The Athena SWAN scheme is one of the chapters of the Equality Challenge Unit (ECU) for higher education institutions in the UK and Scotland [10]. Initially, to improve gender equality in STEM departments, recently extended to other disciplines. The schemes of Athena SWAN and JUNO are similar; the difference is in the institutional engagement with gender equality. While a physics department can engage with the JUNO scheme independent of its institutional engagements with gender equality initiatives, engagement with the Athena SWAN scheme requires institutional engagement.

5.1 At the physics department of Imperial College

The physics department of Imperial College in London first embarked Project JUNO in 2007, when a dedicated JUNO committee was established [21]. The committee implemented the IoP Physics code of practice to address the under-representation of women at all levels in physics. In 2009, the committee also embarked on the Athena SWAN chapter of the Equality Challenge Unit (ECU) for higher education institutions in the UK and Scotland. The JUNO committee oversees and governs both programmes and is firmly embedded in the department with ex officio members who hold senior positions; the chair of the committee sits on Heads of Groups (HoGs) Committee; JUNO matters are a standing agenda item for HoGs meetings and regular presentations are presented at staff meetings. The JUNO committee meets monthly; subcommittees chaired by JUNO committee members for 'Baseline data and supporting evidence', 'Key career transitions: Appointments and promotions', 'Career development: Advice and support', 'Culture, communication, and departmental organization' and 'Career breaks and flexible working' also meet monthly and report to the JUNO committee.

Departmental statistics compiled annually include a report of statistics presented at meeting of the Heads of Groups and on staff meetings; statistics analysed to assess impact of actions and to identify areas which need attention; in-depth studies of recurrent unfavourable (gender-biased) trends; survey of all staff every 3 years; annual survey of final-year students. Surveys inform the JUNO committee about the impact of actions and at the individual level and identify any problems that would be difficult to assess otherwise (e.g. bullying and harassment).

A JUNO subcommittee at the physics department monitors all appointments and promotions. Measures for recruitment include: all research groups to maintain lists of potential female candidates; a search committee to be formed to identify a range of suitable candidates for the position, who are then encouraged to apply; the JUNO committee monitors gender statistics of seminars – a source of potential (male and female) candidates; at least one female on interview panel; feed-back to unsuccessful candidates (on short list).

The sub-commission for 'Key career transitions: Appointments and promotions' organises annual fellowship workshops; gives annually via a panel of 'wise-persons' feed-back on and recommendations for promotions; has setup a guideline for promotions.

Other measures include a Physics Fellows Forum, monitoring of workload and unconscious bias training for all staff.



6. Gender practices in recruitment and selection

The report '*Gender practices in the construction of excellence*' of the GARCIA project [22] addresses gender practices in the construction of academic excellence in recruitment and selection procedures, in particular for precarious positions like postdoc and tenure-track, since here the construction of excellence is key to inclusion or exclusion in academic research. Throughout all institutions reviewed three persistent gender stereotypes were found in the construction of the ideal academic: (i) the gendered construction of the criterion of international mobility, (ii) postdoc recruitment and selection via informal networks, and (iii) preferring internal candidates for assistant professor positions.

6.1 Hiring postdocs

The postdoc position is the first step in an academic career. It was found that they tend to be selected, often under time pressure, preferably on suitability and low risk instead of excellence. Usually, postdocs are recruited via informal networks that often will not have an equal number of men and women by project leaders, who acquired funding and who are hardly held accountable for their selection decisions. At this crucial stage of the academic career female talent can be lost in these informal networks. A remedy for this could be outsourcing the selection of postdocs to the funding agency.

6.2 Grant selections, tenure-trackers and permanent positions

In contrast to hiring postdocs, the procedures for grant selection, tenure-trackers and permanent positions are usually formalised. Generally, supervisors and members of selection committees are less aware of the stereotypes they apply; often they put the responsibility of solving gender equalities on the individual woman or on society. Given the adopted selection standards such as international experience, continuity in publishing, continuity in research and the potential for attracting funding it is important to enhance the gender-awareness of supervisors and the members of the selection committees. Other measures could include using more and diverse scouts, explicitly searching for female talent, making selection criteria explicit before searching for candidates and enhancing the accountability of committee members. Supervisors should be trained to encourage and promote women in their group for an academic career with the same intensity as they do for men and without personal prejudices.

7. Workshop discussions and recommendations

In four parallel workshop sessions the current status of gender equality policies for physics in the Netherlands was discussed from four different perspectives: science management, HR management, senior physicists and early-career physicists. The workshops were prepared and co-chaired by high-level representatives of the FOM and University physics community⁴. The co-chairs presented the participants in the workshop sessions a list of questions to guide the discussion, each question referring to one of the (sub) Fields of Action of GENERA and customised to the perspective of the workshop session. Here we present the recommendations of the workshop participants.⁵

7.1 Structural Integration of Gender Equality

As GENERA's Field of Action 1 [4], structural integration of gender equality is defined as follows:

“Effective cultural and organizational change towards gender equality warrants well-thought out policies and the structural integration of gender equality within an organization. In order for policies to be effective, they need to be targeted, evidence-based and sustainable, while the aim to reach gender equality has to be woven into all aspects of the organization, including the composition of decision making bodies. This refers not only to sex-equal membership, but also to the integration of gender-aware actors in such bodies.”

With respect to this action field, three different issues were discussed by scientific management, HR management and by early-career physicists separately.

7.1.1 The effectiveness of existing programmes

Already since 1999, FOM as a funding agency for physics shows formal commitment towards gender equality in physics with the instalment of the FOM/f programme [19]. The individually customized FOM/f grant programme is generally well appreciated by both faculties, research institutes and the applicants. With the transition of the FOM organisation into the NWO organisation, the future of this programme is not yet defined. Also since 1999, NWO installed the Aspasia programme to stimulate promotion of women in academia to higher level positions [23]. In 2002 the University of Groningen was the first to install a tenure-track fellowship programme for women only, since 2010 gradually followed by other universities, often as the implementation of the recommendation in the sector plan *Physics and Chemistry* of the *Commissie Breimer* to hire more women in higher positions [24]. In 2008, all Universities and the FOM and NWO organisations have signed the Charter *Talent to the Top* [25] as a commitment to a sustainable and effective diversity policy.

⁴ See Appendix II for the names of the chairs of the workshops.

⁵ See Appendix III for a summary of the recommendations.

At the Gender in Physics day, science managers evaluated the effectiveness of the fellowships programmes and the FOM/f programme. They recognised and appreciated the effectiveness of the Rosalind Franklin Fellowship programme [11] of the University of Groningen to structurally enhance the number of women in leading positions in physics research and considered the programme to work well for the participants and to have seeded a mentality change for other positions. There is, however, a need to better communicate and exchange the experience with similar programmes at other universities.

Recommendations by science managers

- Continue the existing Fellowship programmes at the Universities, regularly monitor their effectiveness for physics and exchange information and best practices between the fellowship programmes at various universities.
- With the transition from FOM to NWO, try to let land the FOM/f grant programme in the Science (Bètawetenschappen) domain as a VENI-like programme.

Early-career physicists compared the positive discrimination aspect of the women-only programmes with level playing fields programmes like Marie Curie Fellowships. It was recognised by the female physicists in the workshop that at the start of the career “*you think you do not need positive discrimination*”, while this changes later on. Biases were experienced as subtle and difficult to explain and discouragement is in the little things that add up to lead to insecurity. They argued that women should realise more that the fact that they have come to this point of starting an academic career means that they have surmounted many barriers, and for that reason may be “*better than many of their peers*”. The female participants in the workshop felt that applicants for the fellowship programmes for women are actually already much better than men.

Recommendation by early-career physicists

- Positive discrimination Fellowship or other grant programmes are acceptable, provided the assessment for tenure is the same as for other tenure-track or grant programmes.

7.1.2 Feasibility of recommendations of “Koersvast” report

In 2015, on request of the Ministry of Education, Culture and Research (OC&W), the *Commissie Breimer* published recommendations for strengthening physics and chemistry in the Netherlands in the next decade [26]. Among them, recommendations to enhance the gender balance in physics and chemistry. We quote (translated from the Dutch report):

“...for a sustainable growth to 25% women in permanent positions in chemistry and physics an influx of about 100 new women are required. For this an estimated annual budget of M€ 14 is required. We recommend charging this 50/50 between the OC&W ministry and the universities that could put more weight on diversity when filling vacancies.”

At the Gender in Physics day, scientific managers agreed with this recommendation.

7.1.3 Monitoring

HR managers discussed possibilities for sustainable monitoring of the performance of gender equality plans for physics research in the Netherlands. They considered the GENERA project an opportunity to define key performance indicators for gender policies and to get ministries involved for regular data acquisition per discipline.

Recommendation by HR managers

- The GENERA project should define the key performance indicators for the success of Gender Equality Plans for physics and ensure that a governmental body such as a ministry periodically (annually) harvests the data per discipline.

7.2 Engaging leadership

As GENERA's Field of Action 2 [4], engaging leadership is defined as follows:

“To ensure that a gender equality plan is successful it needs to be supported by all actors within an organization. It is especially crucial that leaders endorse gender equality as an important goal, signalling that gender equality is a vital aspect of the organization's policy and approach. Furthermore, gender equality concerns all internal actors (e.g. employees) and external actors (e.g. policy makers). These stakeholders' support crucial for the success of any gender equality strategy, as their willingness to embrace the aim of reaching gender equality determines its success.”

In various reports, talks and publications it is shown that engaging leadership is decisive for success in improving the gender balance in any organisation and physics research is not an exception. At the Gender in Physics day, science managers discussed the measures that would help compliance with agreements for hiring more women for physics research.

Recommendations by science managers

- Implement top-down accountability of leadership for improving the gender balance. E.g. university or faculty presidents must force compliance with agreed quota or targets for hiring or promoting women.
- Force top-down quota for the number of women on short lists and the number of women appointed and implement an explicit discussion of possible gender bias within selection committees and to avoid informal procedures make assessment and selection procedures at the level of departments or institute public and transparent for staff, applicants and committee members.
- Investigate whether the Netherlands Physical Society (NNV) as an independent organisation could pick up the role of running a similar project as Project JUNO in the UK. In this project, physics departments and institutes voluntarily apply for assessment of their gender-policy and are awarded JUNO Championship if they comply with the JUNO Code of Practice.

7.3 Flexibility, Time and Work Life

As GENERA's Field of Action 3 [4], flexibility, time and work life is defined as follows:

“Long working hours, high pressure and work-life imbalances are common academia. This can negatively affect productivity and worker satisfaction (Kindman & Jones, 2008). Effective work-life balance policies provide a way to address this. Combined with carefully developed policies addressing the needs of employees with caring responsibilities, work-life balance policies would increase productivity, satisfaction and – with the move away from viewing women as traditionally responsible for care – would help move away from rigid sex-roles. It is crucial, however, that measures are formulated in a way inclusive of all genders to not reinforce persistent stereotypes.”

Three aspects in the domain of Field of Action 3 were discussed by HR managers, senior physicists and early-career physicists separately.

7.3.1 Tenure-trackers and pregnancy leave

Usually, for a tenure tracker in the Netherlands, the final assessment for tenure is after a fixed period of 5 or 6 years. A substantial leave, e.g. due to pregnancy or parental leave, will put the tenure-tracker in a disadvantageous position for assessment. Due to legal regulations in the Netherlands, it is difficult to extend the tenure-track period without having to give a permanent position to the tenure tracker. The issue was discussed by HR managers and by senior scientists.

Recommendations by HR managers and senior physicists

- In the working contract with tenure trackers extend the nominal working period *a priori* with e.g. six months. This is legally allowed and leaves room for six months leave for pregnancy and parental leave etc. Ensure that tenure trackers *a priori* are aware of procedures and consequences when they take up pregnancy and/or parental leaves.
- Offer 50 k€ to a female tenure tracker and (assistant/associate) professor to safeguard her position and productivity during pregnancy leave. They could use this money, for instance, to hire a postdoc to continue writing research proposals or doing research during their absence, to revitalize their scientific network after their pregnancy leave or to reduce their teaching load in first period after pregnancy leave. The Faculty of Science of the Radboud University has implemented this measure [28][29].

7.3.2 Dual career

Many physicists have well educated partners with their own career path. When applying for positions in another country or at very distant locations in the same country, the couple faces the choice between a distant relationship and finding a job for the partner close to the location. Most partners prefer the last option, in particular when the partners have a family with children. This is known as the challenge for a *dual career* presented to organisations and companies to be solved. At the Gender in Physics day, the issue of a dual career was discussed by senior

physicists. They considered active support for finding a job for the partner an important asset for a physics department and a good reason to accept a position at the department. Finding a job for the partners could include finding a position in the same faculty or even the same department, but will most likely require support for a job in non-academic organisations and companies. The senior physicists considered it important and urgent that the Universities and FOM/NWO develop programmes that support finding a solution for the challenge of the dual career.

Recommendation

- Create a program offering support for finding a job for the partner when hiring staff. Offering such a program will make an organisation attractive in competing for the best (female) talents.

7.3.3 Demanding working requirements

Early-career physicists discussed the working culture of physics research. One issue was the demands for working abroad on short-term contracts as postdoc and the requirement in the Netherlands of at least one postdoc period abroad when applying for a permanent position. They recognised that working abroad adds to the personal development, but could put strain on family life. Also the culture of long working hours in physics research was discussed. They recognised that internationally long working hours in physics research are the norm, but considered the pressure in the Netherlands not too demanding, while still the productivity is high. Also they appreciated the flexibility in free days. Nevertheless, also in the Netherlands the image of hard and long working physicists still prevails and makes the choice for an academic career less attractive when not ready to give up a normal family life for a couple of years.

Recommendations

- Consider the possibility of creating positions with a hiring and possibility to move abroad.
- Consider the possibility of grants for postdocs that provide an additional year for landing and preparing for a career.

7.4 Presence and Visibility

Presence and visibility is defined as GENERA's Field of Action 4 [4] as follows:

“There is a disproportional underrepresentation of women among researcher and scientific staff (leaky pipeline). Moving up the career ladder, women decrease dramatically and progressively. Addressing the underlying factors contributing to this – such as gender stereotypes – is crucial. In order to increase gender equality within science, it is important to foster a work environment in which all employees can excel. This involves not only the critical assessment of recruitment practices, but also strategies for retention and an analysis of women's attrition. Furthermore, increasing women's visibility and paying attention to equal representation is crucial. Measures in all these categories need to be defined carefully to not victimize female scientists or reinforce gender stereotypes.”

7.4.1 Transparency of recruitment and selection procedures

The transparency of recruitment and selection procedures was discussed by HR managers and senior physicists separately. Both groups were convinced that open protocols for recruitment and selection are required for a transparent and gender unbiased hiring of physicists.

Recommendations

- Look for opportunities to take out possible biases in the recruitment and selection procedures. E.g. try how anonymous first selection would be possible.
- Maintain at all steps of the recruitment procedure the percentage of women.
- Involve external people at various steps of the recruitment procedure. This could include scanning the vacancy text for biases, seeking for external advice and presence of external persons at the various recruitment steps.
- Create public protocols, preferably uniform for the departments at the various universities and research institutes, to be followed for all recruitment and selection and promotion committees and procedures. The protocols must include statements on gender and diversity. Protocols must include a step to encourage candidates to apply, also for promotion. Protocols should be clear about criteria and steps to be taken on a path to a professorship.
- Include at least one woman in shortlists for a position.
- Extend for women the age limit for applications for personal grants.
- Setup a gender and diversity committee at the faculty level, departmental or institute level. A good example is the gender and diversity committee of the Radboud University [28] or the JUNO/Athena SWAN committees at the departments in the UK [9][10][21].

7.5 Gender-inclusive/Gender-sensitive Organizational Culture

Gender-inclusive / Gender-sensitive Organizational Culture is defined at GENERA's Field of Action 5 [4] as follows:

“Increasing gender awareness among all members of an organization is necessary in order for effective and lasting change to be possible. Often we are not aware of the gender stereotypes and biases we unconsciously hold and how they influence our interactions with others. Measures to increase gender awareness include the provision of gender/diversity seminars and the introduction of sexual harassment policies. Effectively raising gender awareness and upholding nondiscrimination as an important mission within an organization will benefit the working environment, as well as gender equality in the organization overall.”

Several issues in the domain of GENERA's Field of Action 5 were discussed in all four workshops.

7.5.1 Definition of Excellence

Science managers discussed the definition of excellence usually applied in physics research organisations.

Recommendations

- To avoid copy-cat behaviour, it is important that science managers and in particular famous/top-physicists openly and actively show respect for women in their group or organisation. If necessary, they should be aware of their role model function in this respect.
- To make promotion reviews less dependent on case-by-case decisions and on supervisor character traits, pool promotion reviews with broadly represented committees with also external representatives. Single annual promotion events would help avoiding informal assessments.
- Pool promotion reviews between universities and research institutes with broadly represented committees to become less dependent on case-by-case decisions and on supervisor characteristics.

7.5.2 Gender/diversity awareness training

The issue of gender/diversity awareness and unconscious bias training was discussed by HR managers, senior physicists and early-career physicists separately. Their recommendations are similar, but different with respect to making this training mandatory.

Recommendations

- Make gender/diversity awareness and unconscious bias training mandatory for those who opt to be involved in recruitment and selection procedures. Other employees could be stimulated to voluntarily participate in such training.
- Senior physicists extend this recommendation to not only committee members, but also for all new staff. Training should include training in intervention when inappropriate comments are made or more generally in reacting in cases of sexism. Early scientists recommended making the training mandatory for all personnel to create a generally welcoming atmosphere.

8 Summary of recommendations

Summary of the above presented recommendations with reference to the workshop during which the recommendation was formulated. A: Science managers; B: HR-managers; C: Senior physicists at permanent positions; D: Early-career physicists at flexible non-permanent positions.

Nr	Recommendation	Workshop
Structural Integration of Gender Equality		
1	Continue the existing Fellowship programmes at the Universities, regularly monitor their effectiveness for physics and exchange information and best practices between the fellowship programmes at various universities.	A
2	With the transition from FOM to NWO, try to let the FOM/f programme land in the Science (Bètawetenschappen) domain as a VENI-like programme. The 'bridging grants' are no longer needed.	A
3	Positive discrimination Fellowship or grant programmes are acceptable, provided the assessment for tenure is the same as for other tenure-track or grant programmes.	D
4	Let GENERA define the key performance indicators for the success of Gender Equality Plans for physics and ensure that a governmental body such as a ministry periodically (annually) harvests the data per discipline.	B
Engaging leadership		
5	Implement top-down accountability of leadership for improving the gender balance must be implemented. University or faculty presidents must force compliance with agreed quota or targets for hiring or promoting women.	A
6	Force quota for the number of women on short lists and the number of women appointed and implement an explicit discussion of possible gender bias within selection committees and to avoid informal procedures make assessment and selection procedures at the level of departments or institute public and transparent for staff, applicants and committee members.	A, C
7	Investigate whether the Netherlands Physical Society (NNV) as an independent organisation could pick up the role of running a similar project as Project JUNO in the UK. Physics departments and institute could voluntarily apply for assessment of their gender-policy.	A
Flexibility, Time and Work Life		
8	In the working contract with tenure trackers extend the nominal working period a priori with e.g. six months. This is legally allowed and leaves room for six months leave for pregnancy and parental leave etc. Ensure that tenure trackers a priori are aware of procedures and consequences when they take up pregnancy and/or parental leaves.	B
9	Offer 50 k€ for flexible to each female tenure tracker and (assistant/associate) professor to safeguard her position and productivity during pregnancy leave. E.g. they could use this money, for instance, to hire a postdoc to continue writing research proposals or doing research during their absence, to revitalize their scientific network after their pregnancy leave or to reduce their teaching load in first period after pregnancy leave.	C
10	Create a "Dual body career" program offering support for finding a job for the partner. Offering such a program will make an organisation attractive in competing for the best (female) talents.	C
11	Consider the possibility of creating positions with a hiring and possibility to	D

	move abroad to relax the pressure of uncertainty in a personally critical phase.	
12	Consider the possibility of grants for postdocs that provide an additional year for landing and preparing for a career.	D
Presence and Visibility		
13	Look for opportunities to take out possible biases in the recruitment and selection procedures. E.g. try how anonymous first selection would be possible.	B
14	Maintain at all steps of the recruitment procedure the percentage of women.	B
15	Involve external people at various steps of the recruitment procedure. This could include scanning the vacancy text for biases, seeking for external advice and presence of external persons at the various recruitment steps.	B
16	Create public protocols, preferably uniform for the departments at the various universities and research institutes, to be followed for all recruitment and selection and promotion committees and procedures. The protocols must include statements on gender and diversity. Protocols must include a step to encourage candidates to apply, also for promotion. Protocols should be clear about criteria and steps to be taken on a path to a professorship.	C
17	Extend for women the age limit for applications for personal grants.	C
18	Setup a gender and diversity committee at the faculty level, departmental or institute level. Example is the gender and diversity committee of the Radboud University [16] or the JUNO/Athena SWAN committees at the departments in the UK.	C
Gender-inclusive/Gender-sensitive Organizational Culture		
19	To avoid copy-cat behaviour, it is important that science managers and in particular famous/top-physicists openly and actively show respect for women in their group or organisation. If necessary, they should be aware of their role model function in this respect.	A
20	To make promotion reviews less dependent on case-by-case decisions and on supervisor character traits, pool promotion reviews with broadly represented committees with also external representatives. Single annual promotion events would help avoiding informal assessments.	A
21	Pool promotion reviews with broadly represented committees to become less dependent on case-by-case decisions and on supervisor characteristics	A
22	<p>Make gender/diversity awareness and unconscious bias training mandatory for those who opt to be involved in recruitment and selection procedures. Other employees could stimulated to voluntary participate in such training.</p> <p>Senior physicists extend this recommendation to not only committee members, but for also for all <u>new</u> staff. Training should include training in intervention when inappropriate comments are made or more generally in reacting in cases of sexism.</p> <p>Early scientists recommended making the training mandatory for <u>all</u> personnel to create a generally welcoming atmosphere.</p>	B, C, D



Reference links

- [1] FOM <http://www.fom.nl/live/english/home.pag>
- [2] GENERA <http://genera-project.com>
- [3] Making a Gender Equality Plan: the GEAR tool box of the European Institute for Gender Equality (EIGE) <http://eige.europa.eu/gender-mainstreaming/tools-methods/gear/>
- [4] GENERA Fields of Action <https://indico.nikhef.nl/event/412/contribution/31/material/3/0.pdf>
- [5] NWO <http://www.nwo.nl/en>
- [6] NNV <https://www.nnv.nl/en/english-home>
- [7] LNVH <http://www.lnvh.nl>
- [8] Physics department Imperial College <http://www.imperial.ac.uk/physics>
- [9] Project JUNO of the Institute of Physics <http://www.iop.org/policy/diversity/initiatives/juno/index.html>
- [10] Athena SWAN charter of the Equality Challenge Unit in the UK <http://www.ecu.ac.uk/equality-charters/athena-swan>
- [11] Rosalind Franklin Fellowship (RUG) <http://www.rug.nl/about-us/work-with-us/rff>
- [12] MacGillavry Fellowship (UvA) <http://www.uva.nl/en/about-the-uva/organisation/faculties/content/faculteit-der-natuurwetenschappen-wiskunde-en-informatica/working-at-the-faculty-of-science/macgillavry-fellowship/macgillavry-fellowship.html>
- [13] Joliot Curie Fellowship (RU) <http://www.ru.nl/nvh/english/about-taskgroup/news-archive/virtuele-map/science-faculty-take/>
- [14] Christine Mohrmann Fellowship (RU) <http://www.ru.nl/werken/waarom-werken-radboud-universiteit/aandacht-diversiteit/> (in Dutch)
- [15] Westerdijk Fellowship UU <http://www.uu.nl/en/organisation/faculty-of-science/about-us/westerdijk-fellowship>
- [16] Delft Technology Fellowship <http://www.tudelft.nl/en/about-tu-delft/working-at-tu-delft/tu-delft-as-employer/delft-technology-fellowship>
- [17] UTWIST – UT Women in mathematics, science and technology tenure track programme.
- [18] WISE programme (NWO) <http://www.nwo.nl/en/research-and-results/programmes/women+in+science+excel>

[19] FOM/f grants

http://www.fom.nl/live/english/research/research_grants/other_fomgrants/artikel.pag?objectnumber=142857&referpagina=139675

[20] LNVH Monitor 2015

<http://www.lnvh.nl/monitor2015/downloads/Monitor%20Vrouwelijke%20Hoogleraren%202015-web.pdf>

[21] JUNO committee at the physics department of Imperial College

<http://www.imperial.ac.uk/physics/about/juno>

[22] GARCIA report: Gender practices in the construction of excellence

http://garciaproject.eu/wp-content/uploads/2014/07/GARCIA_working_papers_n.10.pdf

[23] Aspasia programme <http://www.nwo.nl/onderzoek-en-resultaten/programmas/aspasia>

[24] Implementation of the sector plan Natuurkunde en Scheikunde

<http://www.fom.nl/live/attachment.db?119174>

[25] Talent to the top charter http://talentnaardetop.nl/Home_EN/?Language=en

[26] 'Koersvast' eindrapport <http://www.nwo.nl/documents/cw/wetenschapsvisie/rapport-commissie-breimer-koersvast%5B2%5D>

[28] Gender and diversity committee of the Science Faculty of Radboud University

<http://www.ru.nl/fnwi/faculteit/profiel/gender-diversiteitsbeleid/>

[29] *Towards Gender Equality in the Faculty of Science*, Gender and diversity committee of the Faculty of Science, Radboud University

http://www.ru.nl/publish/pages/797776/towards_gender_equality_in_the_faculty_of_science_-_radboud_university_2015.pdf

Appendix I – Programme of the GiPNL day



GENDER-IN-PHYSICS DAY PROGRAMME⁶

09:30-10:00 – Welcome and registration in Foyer

10:00 – 11:30 (in Rondeel) - Performance gender equality programmes for physics in the Netherlands

10:00 Opening by Anouck Vrouwe, MSc

Anouck Vrouwe is communications advisor at FOM and freelance text writer, science journalist and chairperson. She obtained a MSc physics at Radboud University in Nijmegen. She will chair the plenary sessions of this first GENERA Gender in Physics day in The Netherlands.

10:05 That girl that kinda likes space stuff
Ans Hekkenberg, MSc

Ans Hekkenberg works as a communications advisor for FOM. She also works as a freelance science writer, for media such as De Volkskrant and KIJK. On top of that, she is the ambassador of the Dutch Technology Pact – an effort by the government, industry and education to encourage young people to choose a career in the STEM fields. As the ambassador of Technology Pact, Ans specifically aims to inspire girls to pursue a career in science or tech. In her talk, she will take you along on her personal journey, from 'that girl that kinda likes space stuff', to STEM ambassador. She'll talk about the challenges she encountered on the way, how she experienced gender bias, and why these experiences matter. Finally, she will ask everyone the question: how can you contribute to make a change? Ans' message: we're willing and we're able, so let's get to work!

10:25 What is GENERA and why this Gender-in-Physics day?
Drs. Job de Kleuver

Job de Kleuver is programme manager International Affairs and Large Facilities at FOM. He obtained a MSc physics at VU University in Amsterdam. He started his career at FOM 25 years ago and has built over the years an in depth knowledge of research policies in the Netherlands and beyond. As one of the work package leaders of the GENERA H2020 project he is responsible for creating a sustainable European network for monitoring the implementation and performance of Gender Equality Plans for physics in Europe. Job will present the whats and hows of the GENERA project and the aim of this Gender-in-Physics day in the Netherlands, first of an international series.

⁶ See <https://indico.nikhef.nl/event/412/> for the Indico page of the meeting.

10:45 **Video: “The Monkey business illusion”** by Daniel J. Simons
An unconscious bias test: count how many times the players wearing white pass the ball.

10:50 **Programmes for women-in-physics/science at universities in NL**
Prof. Petra Rudolf

Petra Rudolf is professor Experimental Solid State physics at the University of Groningen. She obtained a MSc at “La Sapienza” university in Rome and a PhD at the University of Namur in Belgium. She is an advocate of positive action programmes like the Rosalind Franklin-fellowships: “The advantage of such programmes is that your academic career becomes manageable. You know what you have to do and if you perform well you may become professor. Women need to feel in control when planning a family and a career.” Petra will present the performance of current positive action programmes for women in physics/science in the Netherlands.

11:05 **Women in Physics in the Netherlands; a spray gun approach to 20% in 2020**
Dr. Christa Hooijer

Christa Hooijer is director of FOM, the funding agency for physics in the Netherlands. She obtained a MSc in applied physics at Twente University and a PhD at VU University in Amsterdam. She started at FOM as scientific programme officer and ran among others the FOM/f programme for women in physics. The problem of women in physics is a result of personal choices greatly influenced by societal expectations of women and of social images of what a 'proper' scientist is. As statistics is made up of individual cases, we strongly believe in the necessity of tailor-made solutions to individual situations. This has been facilitated by the FOM/f programme that is continuously running since 1998 at FOM. The main purpose of this programme is to increase the number of women in permanent positions in physics in the Netherlands. In this talk I briefly indicate the why's and how's of this long running programme, and show some of its results.

11:25 **Video: “Perception test”**, by Daniel J. Simons
Watch the silent movie and you will be asked some questions about it.

11:30 – 12:00 BREAK in Foyer

12:00 – 13:30 (in Rondeel) - Experience with other gender equality plans and recruitment

12:00 **The JUNO Experience in Physics at Imperial College London**
Prof. Dimitri D. Vvedensky (The Blackett Laboratory, Imperial College London)

Dimitri Dimitrievich Vvedensky is a Professor in the Department of Physics at Imperial College London. He obtained a B.S. in Mathematics at the University of Maryland and S.M. and Ph.D in Materials Science at the Massachusetts Institute of Technology. He has been a member of the Department of Physics Juno Transparency and Opportunities Committee since September 2011 and the Chair since July 2012.

The Juno Transparency and Opportunity Committee in the Department of Physics at Imperial College was formed in 2007 to implement the IoP Juno code of practice, with particular attention to addressing the under-representation of women in physics. This brief has expanded to include ethnic diversity, but the main tenets of the committee's existence benefits all members of the Department. The Department is a leading exponent of the Juno and Athena-SWAN charters at Imperial and beyond, and was awarded IoP Juno Champion status and Athena Silver SWAN in 2009, with renewals in 2012, 2015, and 2016.

This talk will review the activities the Juno Committee has initiated and how these activities and the Committee itself have become embedded in culture of the Department.

Included will be our efforts to understand the underperformance of female undergraduate degree results, building networks across under-graduate, postgraduate, and post-doctoral communities, encouraging and supporting female fellowship applicants, and our initiatives to increase female participation in the recruitment of faculty appointments.

12:25 LNVH: How to redress the gender imbalance in Dutch academia?

Prof. Angela Maas

Angela Maas is cardiologist since 1988. Over the past 25 years she has specialised in heart disease in women. Since May 2012, she holds a chair 'Cardiology for Women' at the Radboud University in Nijmegen. She is board member of the Dutch Network of Women Professors LNVH. The LNVH aims at a proportionate representation of women in academia. Necessary, because we are still in the lowest ranks in Europe as it comes to the percentages of women professors. Over 50% of female students and only 17% female professors: where do all these women go? Prof. dr. Angela Maas will run you through the statistics, the reasons behind the notorious leaking pipeline and the things the LNVH does to address the urgent matter of changing the (white) male dominated culture within Dutch academia into a diverse and inclusive one.

12:55 Scientific excellence, diversity and precarious careers

Prof. Marieke van den Brink

Marieke van den Brink is professor of Gender & Diversity at Radboud Social and Cultural Research in Nijmegen and a member of the Young Academy of the Royal Academy of Arts and Sciences. She researches the place and functioning of gender and diversity in organizations (especially recruitment and selection) and the possibilities and impossibilities of organisational change. In the presentation, Marieke van den Brink will discuss what is constructed as academic excellence at the micro-level, how evaluators operationalise this construct in the criteria they apply in academic evaluation, and how gender inequalities are imbued in the construction and evaluation of excellence. She will challenge the view that the academic world is governed by the normative principle of meritocracy in its allocation of rewards and resources. Based on an empirical study of professorial appointments in the Netherlands and a European research on gender and precarious workers (www.garciaproject.eu), Marieke will show that academic excellence is an evasive social construct that is inherently gendered.

13:20 Introduction to workshops

Dr. Sandra Hesping (FOM)

13:25 Video: "Gradual change test" by Daniel J. Simons

Watch the short film and try to spot the change. Only one thing will change.

13:30-14:30 LUNCH in Foyer

14:30-15:45 – parallel workshop sessions in rooms P.1 – P.4

Workshop A - Gender Equality Plans and science management

Chairs/Convenors: Prof. Dr. Sijbrand de Jong (RU, CERN Council), Prof. Dr. Petra Rudolf (RUG)

Effectiveness of the current programmes for women-in-physics

Evaluation of the recommendations in 'Koersvast' of the 'Commissie Breimer'.

Accountability of the science management for the implementation of Gender Equality Plans

Definition of 'Excellence' used in assessments and reviews

Workshop B – Gender Equality Plans and recruitment & career planning*Chairs/convenors: Dr. Joost van Mameren (UvA/IoP), Lydia van der Vlist (FOM/CPD)*

- Sustainable monitoring of the performance of Gender Equality Plans
- Compensation for breaks during tenure-track period
- Transparency of the recruitment and selection in physics
- Mandatory training on gender/diversity awareness and unconscious bias

Workshop C – Gender Equality Plans from the perspective of senior physicists*Chairs/convenors: Prof. Dr. Annalisa Fasolino (RU), Prof. Dr. Maarten de Jong (Nikhef, UL)*

- Compensation for breaks during tenure-track period
- Measures to create a child and family friendly organisational structure
- Transparency of the recruitment and selection in physics
- Measures to create a culture of inclusiveness

Workshop D - Gender Equality Plans from the perspective from early career physicists*Chairs/convenors: Dr. Andrea Baldi (DIFFER), Prof. Dr. Jan van Ruitenbeek LEI, NNV)*

- Demands for working abroad in short-term postdoc positions
- Culture of long working hours in physics research
- Positive discrimination and level playing field programmes
- Measures to create a culture of inclusiveness

15:45-16:15 BREAK in Foyer**16:15-16:50 - Panel discussion in Rondeel*****Panel members****Petra Rudolf (workshop A – Science management), Joost van Mameren (workshop B – HR management), Annalisa Fasolino (workshop C –Senior physicists), Andrea Baldi (workshop D – Early career physics), Wim van Saarloos (President of the Netherlands Royal Academy of Sciences KNAW and member of the GENERA Experts Board)****Statements for discussion****Physics is 'top sport' and requires personal sacrifices.**All employees in a physics institute/department must be trained for gender/diversity awareness and unconscious biases.**Physics conferences with less than 30% female plenary speakers must be boycotted.***16:50-17:00 – Closing ceremony: handover of today's recommendations to Prof. Wim van Saarloos (member of the GENERA Experts Board) by Job de Kleuver (WP-leader of GENERA).****17:00 Drinks in Foyer**

Appendix II – Organisational details of the workshops

This appendix comprises the material that was provided *a priori* to the participants of the four workshops. The questions were formulated by the chairs of the workshop to spark of the discussion. Each workshop was chaired by two co-chairs: one representing the FOM research institutes, the other representing the physics departments of the university.

Chairpersons and convenors of the workshops

The chairs of the Workshop session at the GinPNL day were

Co-chairs	Affiliation	Workshop	Perspective
Prof. Sijbrand de Jong	Radboud University/IMAPP Chair CERN Council	A	Science management
Prof. Petra Rudolf	University of Groningen Chair of FOM/f programme		
Dr. Joost van Mameren	University of Amsterdam Institutes manager IoP	B	HR management
Lydia van der Vilst	FOM/CPD HRM advisor Mentoring programme FOM		
Prof. Annalisa Fasolino	Radboud University/IMAPP Member of the Gender and Diversity Committee	C	Senior physicists
Prof. Maarten de Jong	Nikhef and University of Leiden Spokesperson of KM3NeT		
Dr. Andrea Baldi	DIFFER	D	Early-career physicists
Prof. Jan van Ruitenbeek	Leiden University/LION President of the NNV		

Overview of questions for discussion in the workshop

OVERVIEW ALL QUESTIONS

1. Structural integration of gender equality: policies, monitoring, sustainability, compositions & integration		
nr	Question	Workshop
a	How do you evaluate the effectiveness of positive discrimination programmes such as the FOM/f, Rosalind Franklin Fellowships (RUG) and WISE (NWO) to establish gender balance in physics research, in particular in the leading positions?	A
b	How do you interpret the feasibility and effectiveness of the recommendations of the 'Commissie Breimer' in 'Koersvast' for establishing gender balance in the physics research groups in the Netherlands?	A
c	What is your recommendation for sustainable monitoring of gender balance in physics research and/or the performance of gender equality plans for physics research in the Netherlands?	B
2. Engaging leadership: leadership accountability, stakeholder engagement		
nr	Question	Workshop
a	How could science leadership in the Netherlands be held accountable for improving the gender balance in physics research, in particular in your organisation or at your institute?	A

3. Flexibility, time and work life: work-life balance, care and family life		
nr	Question	Workshop
a	What ingredients should be part of schemes designed to compensate for delay due to parental/carer's leave in the assessment of tenure-trackers?	B, C
b	What measures do you recommend to create a child & family friendly organisational culture?	C
c	How do you evaluate the demands for working abroad in short-term contracts as a post-doc?	D
d	What do you think of the culture of long working hours thought to be necessary to succeed in an academic career in physics?	D
4. Presence and visibility: recruitment, retention & attrition, advancement, visibility		
nr	Question	Workshop
4	How do you evaluate the transparency of the recruitment and selection procedures in your organisation or at your institute?	B, C
4	How do you evaluate positive discrimination programmes like FOM/v or Rosalind Franklin Fellowships as compared to a level playing field of programmes like Marie Curie Fellowships or the VENI, VIDI of NWO?	D
5. Gender inclusive/Gender-sensitive organisational culture: gender awareness and bias, non-discrimination, deconstructing excellence		
nr	Question	Workshop
a	How do you evaluate the definition of 'excellence' commonly used in the assessments and reviews in physics research organisations?	A
b	What is your opinion about mandatory training on gender awareness and unconscious biases of all physics and technical staff in your organisation or at your institute?	B
c	What measures do you propose to create a culture of inclusiveness for women in your organisation or at your institute?	C, D

Discussion items per workshop

(copy of the documents provided to the workshop participants)

Workshop A – Gender equality plans and science management

QUESTIONS and Discussion items

The numbering scheme refers to the Fields of Action of GENERA 4].

1. Structural integration of gender equality: policies, monitoring, sustainability, compositions & integration

- a) **How do you evaluate the effectiveness of positive discrimination programmes such as the FOM/f, Rosalind Franklin Fellowships (RUG) and WISE (NWO) to establish gender balance in physics research, in particular in the leading positions?**

Issues that could be addressed in the discussion:

FOM/v is for physicists only, while Rosalind Franklin Fellowships and WISE are science-wide. Are customised programmes for physics more effective? Could WISE and Rosalind Franklin be customised as a separate tool for physics? Which type of programme do you prefer?

Would successful applicants to these programmes have been successful also in gender-neutral programmes for tenure-trackers? Do these programmes reduce the number of positions in gender-neutral programmes for tenure-trackers?

Do you think it feasible at the level of an institute to define quota? How flexible should quota be interpreted, e.g. should some physics research areas be exempted, and if so, why?

*The JUNO project of the Institute of Physics in the UK aims at rewarding physics departments that can demonstrate they have taken action to address the under-representation of women in university physics. Experience with **Project JUNO** will be presented by Dimitri Vvedensky from Imperial College in London in the morning session. The physics department of Imperial College has been awarded the status of JUNO Champion. Would a Project JUNO type of programme be an effective tool in the Netherlands?*

b) How do you interpret the feasibility and effectiveness of the recommendations of the ‘Commissie Breimer’ for establishing gender balance in the physics research groups in the Netherlands?

We cite the recommendation on page 28 of the report “Koersvast” (in Dutch):

*“5.2 Verhoging participatie vrouwen en minderheden in de wetenschappelijke staf
Door het vigerende Sectorplan is het aandeel vrouwen in de vaste staf in de periode 2010 tot 2013 sterk gestegen: bij scheikunde van tien naar vijftien procent, bij natuurkunde van negen naar dertien procent. Door deze ervaring lijkt een groei naar vijftientig procent in 2025 haalbaar. Daarvoor is in die periode een instroom van ongeveer honderd nieuwe vrouwen nodig. Dit vergt een budget van M€ 14 per jaar. Wij bevelen aan daarvan de helft ten laste van structurele additionele middelen van OCW te brengen (M€ 7) en de andere helft door de instellingen zelf te laten bekostigen (door bij de herbezetting van vacatures diversiteit zwaarder te laten wegen). Aangezien de tot nu toe bereikte toename van het aandeel vrouwen vrijwel geheel toe te schrijven is aan de komst van jonge tenure-track-onderzoekers (grotendeels uit het buitenland), zal in de komende jaren aandacht besteed moeten worden aan de bestending van hun positie in het Nederlandse onderzoeklandschap. Hetzelfde geldt voor de nieuw aan te trekken generatie tenuretrackers en senior staf. Voor zover daarvoor onderzoeksmiddelen nodig zijn, kunnen deze uit budgetten van andere maatregelen geput worden (zie bijvoorbeeld paragraaf 5.1).”*

Issues that could be addressed in the discussion:

Do you agree with the statement that the ambition of 25% women in permanent positions in 2015 is feasible? Do you see fields of physics research where this ambition will most easily be met? Would you advise that the 25%-ambition is met at the level of each institute or university group? What is your advice for effectively monitoring the progress toward the 25% in 2025? Do you consider the proposed funding scheme for 25% in 2025 adequate?

2. Engaging leadership: leadership accountability, stakeholder engagement

a) How could science leadership in the Netherlands be held accountable for improving the gender balance in physics research, in particular in your organisation or at your institute?

Issues that could be addressed in the discussion:

Is funding a good instrument? Should it be part of a review and assessment of the leadership? Should it be part of a review by external SACs of your organisation or your institute?

5. Gender inclusive/Gender sensitive organisational culture: gender awareness and bias, non-discrimination, deconstructing excellence

- a) **How do you evaluate the definition of ‘excellence’ commonly used in the assessments and reviews in physics research organisations?**

Issues that could be addressed in the discussion:

*How transparent is the definition of excellence in your organisation or at your institute? How is excellence measured? Do the assessments procedures provide a level equal playing field for women and men? What differences do you see in the measurement of excellence of women and men? As background a **video interview** with Jacques Mairesse (professor at CREST, UNI-MERIT, NBER) about an investigation by CNRS of a possible gender gap in production in physics. And his **presentation** about the same subject at an OST SciSci Seminar in April 2016.*

Workshop B – Gender equality plans and recruitment & career planning

QUESTIONS and Discussion items

The numbering scheme refers to the Fields of Action of GENERA [4].

1. Structural integration of gender equality: policies, monitoring, sustainability, compositions & integration

- c) **What are your recommendations for sustainable monitoring of the gender balance in physics research and/or the performance of gender equality plans for physics research in the Netherlands?**

Issues that could be addressed:

Should monitoring be centralised, e.g. should monitoring of the performance of programmes like FOM/f, Rosalind Franklin and WISE be centralised? Is this a task for the VNSU or for NWO or for OC&W? What performance indicators do you propose?

3. Flexibility, time and work life: work-life balance, care and family life

- a) **In the assessment of tenure-trackers, what are your recommendations for compensation for pregnancy-, parental or carer’s leave?**

Issues that could be addressed:

Due to legal regulations, it is not easy to extend a tenure-track period to compensate for a leave, without giving the tenure-tracker a permanent position. How do you see a solution for this? How do you compensate for a shorter tenure-track period in the assessment of a tenure-tracker?

4. Presence and visibility: recruitment, retention & attrition, advancement, visibility

- a) How do you evaluate the transparency of the recruitment and selection procedures in your organisation or at your institute?

Issues that could be addressed:

In the past, when not a being member of the 'old-boys-network' of the institute, it was hard to learn the soft rules around recruitment and selection. What measures have you taken in your institute or organisation to make the procedures transparent and known? How have you verified that your staff indeed experience the procedures as transparent?

Usually, a physics research organisation or institute prefer a level playing field above positive discrimination of women physicists in the application for jobs or grants. What measures have you taken to ensure that indeed also for women the recruitment and selection procedures provide a level playing field? How have you verified that women indeed consider the procedures as fair?

How are women involved at all stages in recruitment processes such as searching for candidates, resume screening, interviews, offers and acceptance, selection & hiring committees? Have you experienced that when a selection committee has a substantial fraction of women, relatively more women are selected?

For both early-career applicants and applicants for higher positions, the presence of a dual body career scheme for them and their partners can be a pull factor. Would you allow partners to work in the same institute? What do you advise to help partners to find an adequate level job elsewhere? Is budget for a dual body career scheme available in your organisation?

5. Gender inclusive/Gender-sensitive organisational culture: gender awareness and bias, non-discrimination, deconstructing excellence

- b) Would you recommend mandatory training on gender/diversity awareness and unconscious biases of all physics and technical staff in your organisation or at your institute?

Issues that could be addressed:

Do you consider training on gender/diversity awareness and unconscious bias useful for creating an inclusive culture in your organisation or at your institute? Do you consider it feasible to make the training mandatory? Would the staff at your institute accept such a mandatory measure?

Do you consider the culture of the 'old-boys' at your institute no longer present? How do you measure that the culture at your institute is indeed inclusive for women? Should the female staff accept or adapt to the prevalent male culture at your institute, because that is how physics is best served?

Do you think women physicists in your organisation or at your institute would benefit from a mentoring scheme? Have you verified with your female staff that they would appreciate to be mentored? What type of mentor would be most effective in mentoring your female permanent staff, tenure-trackers, or early-career staff?

How have you verified that your female staff feels safe at the institute? Is there an appeal body for complaints about unpleasant behaviour? How is the appeal body structured and organised? Did you experience complaints about sexual harassment at your institute?

Workshop C – Gender equality plans from the perspective of senior physicists

QUESTIONS and discussion items

The numbering scheme refers to the Fields of Action of GENERA [4]

3. Flexibility, time and work life: work-life balance, care and family life

- b) **What ingredients should be part of schemes designed to compensate for delay due to parental/carer's leave in the assessment of tenure-trackers?**

Due to legal regulations, it is not easy to extend a tenure-track period to compensate for a leave. How should your evaluator compensate this in the assessment of your shorter tenure-track period? Have you experienced a break in your tenure-track period?

- c) **What measures do you recommend to create a child & family friendly organisational culture?**

Are you aware of measures at your institute that should help you combining your work as a physicist with raising children and caring for family? If yes, were you involved in defining these measures? In the Netherlands, in particular while raising children or caring for relatives, it is well accepted to work part-time. Usually in these cases, higher educated people work for four days per week. Is this also the case at your institute?

Does your institute provide a dual body career scheme? If yes, would you and your partner make use of such a scheme? What do you expect from a dual body career scheme? Would you appreciate if your partner was offered a position at your institute? If your partner is searching for a job elsewhere, what would you expect from a dual body career scheme? Did you and your partner make use of a dual body career?

At your institute, are cost for extra child-care during conferences eligible for reimbursement? Does this include the cost for bringing your children to the place of the conference? Do you make use of the regulations offered at your institute?

Are block hours defined for working meetings, e.g. between 10h and 16h? Would this help you? Is working from home accepted/possible? Would that help you?

4. Presence and visibility: recruitment, retention & attrition, advancement, visibility

- a) **How do you evaluate the transparency of the recruitment and selection procedures in your organisation or at your institute?**

In the past, when not being a member of the 'old-boys-network' of the institute, it was hard to learn the soft rules around recruitment and selection. Do you consider today's procedures in your institute transparent? Are you informed about possibilities for promotion or for grants? Have you been encouraged to apply?

Usually, a physics research organisation or institute prefers a level playing field instead of positive discrimination of women physicists in the application for jobs or grants. Do you consider the recruitment and selection procedures at your institute providing a level playing field for men and women? Do you consider the procedures discriminatory against men or against women?

In your organisation or at your institute, how are women involved at all stages in recruitment processes such as searching for candidates, resume screening, interviews, offers and acceptance, selection & hiring committees? How often do selection committees in your institute not comprise a woman? Have you experienced that when a selection committee has a substantial fraction of women, relatively more women are selected?

Did you or would you apply for positive discrimination programmes such as FOM/v, Rosalind Franklin, WISE? How do you appreciate these programmes?

At your institute, is a mentoring scheme implemented? Have you experience with mentoring, as a mentor or as a mentee? What type of mentor do you consider most effective for yourself? Did you ask for a mentor or was it offered? Did you select your mentor yourself, and if yes, on what criteria?

Due to the low percentage of women in physics research, they are more often than man asked to serve at committees or outreach activities. Do you think it appropriate to compensate them for this, e.g. by assigning to them an extra PhD student or postdoc. Have you experienced yourself that the burden of serving on committees is too high? What is your experience with being a role model?

5. Gender inclusive/Gender-sensitive organisational culture: gender awareness and bias, non-discrimination, deconstructing excellence

c) What measures do you propose to create a culture of inclusiveness for women in your organisation or at your institute?

Which factors do you identify, from your experience, as responsible for the small fraction of female physicists? Is gender awareness and unconscious bias training offered at your institute, in particular to members of assessment committees or the leadership of your institute? Would you participate in such training? Do you consider it necessary that grant selection committees are trained for gender awareness and unconscious bias?

Do you consider the working environment at your institute safe for women? Do you feel safe at your institute? Is there an appeal body for complaints about unpleasant behaviour? How is the appeal body structured and organised? Did you experience sexual harassment at your institute or by colleagues of your institute?

Workshop D – Gender equality plans from the perspective of junior physicists

QUESTIONS and discussion items

The numbering scheme refers to the Fields of Action of GENERA [4].

3. Flexibility, time and work life: work-life balance, care and family life

- c) **How do you evaluate the demands for working abroad on short-term contracts as a post-doc?**

If you chose for an academic career after your PhD, you are expected to spend at least a couple of years abroad as a postdoc, before applying for a permanent position. Usually, it is not easy to combine this with family life. Will this scare you away from an academic career? Would it help you if the postdoc period would be only one year abroad or could be cut up into short periods? Do you feel it is fair that a postdoc period abroad is almost mandatory for a getting a permanent position in the Netherlands? Do you consider an academic career outside the Netherlands? Is it even your preference? What would attract you to an academic career in the Netherlands?

- d) **What do you think of the culture of long working hours thought to be necessary to succeed in an academic career in physics?**

In a recent interview to the New York Times on long working hours and gender inequality, prof. Robin Ely of the Harvard Business School said that “24/7 work cultures lock gender inequality in place, because the work-family balance problem is recognized as primarily a woman’s problem. The very well intentioned answer is to give women benefits, but it actually derails women’s careers. The culture of overwork affects everybody.” Do you think such a long working hour culture exists in physics? Is this an aspect you have ever considered when deciding your next career steps?

4. Presence and visibility: recruitment, retention & attrition, advancement, visibility

- b) **How do you evaluate positive discrimination programmes like FOM/v or Rosalind Franklin Fellowships as compared to a level playing field of programmes like Marie Curie Fellowships or the VENI, VIDI of NWO?**

By definition FOM/v and the Rosalind Franklin Fellowships are discriminating since only women can apply for them. How would you evaluate them as a driver to enhance the gender balance in physics research? Do you consider them stigmatising the women that take part in them? Do you expect the best qualified women physicists to apply for these programmes? Would you apply for them yourself? What is your opinion about a mentoring scheme for female PhD students and postdocs such as the one organised by FOM?

Usually, a physics research organisation or institute prefers a level playing field instead of positive discrimination of women physicists in the application for jobs or grants. Do you consider the recruitment and selection procedures at your institute providing a level playing field for men and women? Do you consider the grant selection procedures in Europe or in the Netherlands providing a

level playing field? Can you give an example of why a selection procedure could be disadvantageous for women?

5. Gender inclusive/Gender-sensitive organisational culture: gender awareness and bias, non-discrimination, deconstructing excellence

c) What measures do you propose to create a culture of inclusiveness for women in your organisation or at your institute?

Which factors do you identify, from your experience, as responsible for the small fraction of female physicists? Would you assess the working environment of your institute as inclusive for women? Did you experience gender stereotyping at your institute or at your university, e.g. by teachers or by your supervisor?

There is some experience that female scientists perform better when they are in teams of predominantly women. Should we actively assemble such teams, so that we can form cores of strong female presence and excellence, which can serve as examples to inspire students?

Do you consider the working environment at your institute safe for women? Do you feel safe at your institute? Is there an appeal body for complaints about unpleasant behaviour? How is the appeal body structured and organised? Did you experience sexual harassment at your institute or by colleagues of your institute?

At various institutes the leadership is trained for gender/diversity awareness and unconscious bias. Would you appreciate if all physics and technical staff, including postdocs and PhD students, would be trained in the same way? Should it be made mandatory?