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## Machine learning for radiometer calibration in global 21cm cosmology

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In this talk we propose a Physics based AI framework for precise radiometer calibration in global 21cm cosmology. These experiments aim to study formation of the first stars and galaxies by detecting the faint 21-cm radio emission from neutral hydrogen. The global or sky-averaged signal is predicted to be five orders of magnitude dimmer than the foregrounds. Therefore detection of the signal requires precise calibration of the instrument receiver, which non-trivially amplifies the signals detected by the antenna. Current analytic methods appear insufficient, causing a major bottleneck in all such experiments. Unlike other methods, our receiver calibration approach is expected to be agnostic to in-field variations in temperature and environment. For the first time we propose the use of an encoder-decoder neural network framework for calibration of global 21-cm cosmology experiments.

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