## Annual Meeting of the Swiss Physical Society 2024



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## [951] Maximum likelihood estimation of moments in molecular density optical nanoscopy

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Single molecule localization techniques offer a direct measurement of the position of individual molecules, which can be computationally combined to reconstruct objects of interest. On the other hand, the Single-Pixel Imaging (SPI) concept allows to capture an image using just a single photodetector. Remarkably, in both techniques, a geometric description of the sample is typically obtained through post-processing. Here, I present molecular density optical nanoscopy (MOON), a method to infer moments of a fluorophore distribution from fluorescence microscopy images acquired under sequential structured illumination. In this talk, I will present a framework to estimate the moments of the sample up to second order and discuss MOON precision and photon efficiency.

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