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**Alexander Moll\*** (a.moll@northeastern.edu). *Gaussian Fields in Geometric Quantization*.

The study of path properties of fractional Gaussian fields – such as their level sets and extreme values – often requires a regularization such as discretization of the domain. In this talk, we will show that the Segal-Bargmann construction of Fock-Sobolev spaces in geometric quantization provides a distinguished regularization of these fields on arbitrary Riemannian manifolds with boundary. As applications, (I) we derive limit shapes and global Gaussian fluctuations for a large class of point processes associated to classical Hamiltonian systems that are not necessarily Liouville integrable and also (II) realize the asymptotics of cycles of large uniform random permutations within our regularization of log-correlated Gaussian fields in 1 dimension. (Received January 19, 2020)