

## **Optimal design spectral problems with repulsion**

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In the short talk I will quickly review the state of the art of some variational problems based on physical models (the Rayleigh liquid drop model, the Gamow liquid drop and the reduced Hartree equation). Then I will focus on recent results about an optimal design problem related to the latter of these models. The talk will take into consideration collaborations with M. Goldman, C. B. Muratov, M. Novaga and D. Mazzoleni.