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## Abstracts of Short Communications and Posters

### Section:

## 17. Control Theory and Optimization

1991 MS Classification: 31C15,31C20,49J45

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**Existence and Approximation of Gauss Variational Problem in Potential Theory**

This communication will be mainly focussed on radial kernels on $R^n$, such as Riesz's, logarithmic or multiquadrics kernels. We study the existence and approximation of solutions of quadratic minimization problems on general convex sets of positive Radon measures. Firstly, we obtain sufficient conditions on a convex set to assure the existence of minimizing sequences of discrete measures. In this case, we build computation schemes by optimizing the mass distribution of all admisible discrete measures. In relevant cases, this approximation procces can be performed in two ways depending on whether we work with the quadratic functional or with its associated Euler's inequality: we solve a sequence of quadratic or linear programming problems respectively.