

## Departmental Colloquium

### *The refractor problem and applications*

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**Abstract:** The refractor problem consists in designing a surface separating two homogeneous media with different refractive indices, that refracts radiation emanating from a point source or a set of sources into a target destination with a prescribed distribution of energy. The solution of this problem yields free form lenses refracting monochromatic radiation in a prescribed manner, and it has connections with the areas of optimal mass transport and Monge-Ampere type equations. In this lecture, I will present the background for the problem and describe some results showing the connections with these areas. I will also describe an algorithm to solve the problem numerically.

Friday, October 13 at 3:00 PM in SEO 636