

Título: *Nonlinear Techniques to Solve Linear Optimization Problems: Think of Interior Point Methods.*

Resumo: Roger Fletcher and Michael Powell made ground-breaking contributions to the theory and practice of numerical linear algebra and optimization. In this lecture, I will recall some of their seminal works which launched the field of nonlinear optimization. I will also talk about interior point methods. Their development started from a somewhat surprising use of a nonlinear technique (logarithmic barrier) in the context of linear optimization. Later this led to establishing a class of very successful methods which deal with linear, quadratic, nonlinear and semidefinite optimization and excel at solving large problems. The legacy of Fletcher and Powell continues to have an impact on a broad area of optimization. I will illustrate it with a very recent application of a quasi-Newton technique in the context of interior point methods, which is a joint work with Francisco Sobral.