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Miguel Sama* (msama@ind.uned.es), ETSI Industriales, Calle Juan del Rosal 12, 28040 Madrid, Spain, **Baasansuren Jadamba** (bxjsma@rit.edu), School of Mathematical Science, Rochester, Institute of Technology, 85 Lomb Memorial, Drive, Rochester, NY 14623, and **Akhtar Khan** (aaksma@rit.edu), School of Mathematical Science, Rochester, Institute of Technology, 85 Lomb Memorial, Drive, Rochester, NY 14623. *Conical regularization of constrained optimization problems in Banach spaces.*

In this talk, motivated by state-constrained PDE optimal control problems, we deal with an abstract constrained optimization problem in Banach spaces. In this context, by regularization we understand those methods which construct a family of approximate problems which can be solved through Lagrange multiplier rules. This new approach consider a direct regularization of the constraint cone, by replacing the constraint cone by an approximate family of cones. We present several variants and compare them with existing theories. Existence theorems, convergence analysis, and numerical results are presented. (Received September 24, 2012)