

**Igor Verbitsky**

(University of Missouri, Columbia, USA)

*1. Weighted norm inequalities of  $(1, q)$ -type for integral operators and a sublinear version of Schur's lemma*

We intend to present characterizations of weighted norm inequalities of  $(1, q)$ -type, where  $0 < q < 1$ , for integral operators with positive kernels (in particular, Green's kernels) and maximal functions. Our approach is based on a sublinear analogue of Schur's lemma. These inequalities are motivated by applications to certain nonlinear elliptic PDE and convolution equations with radial non-decreasing kernels.

*2. Global estimates of solutions to nonlinear elliptic PDE and integral equations*

We will give necessary and sufficient conditions for the existence of solutions, and provide sharp global pointwise estimates of solutions and supersolutions in terms of nonlinear potentials adapted to sublinear problems. We will also discuss global pointwise estimates of positive solutions for more general nonlinear elliptic PDE of the type  $-\Delta u = \sigma u^q + \mu$  for all real  $q$ , where  $\sigma, \mu$  are given functions, or measures, on a Euclidean domain or a weighted Riemannian manifold.

These talks are based on joint work with Alexander Grigor'yan, Dat Tien Cao, and Stephen Quinn.