

Table of Contents for SURV/223

Alice and Bob Meet Banach

- Alice and Bob: Mathematical Aspects of Quantum Information
 - ◆ Notation and basic concepts
 - ◆ Elementary convex analysis
 - ◆ The mathematics of quantum information theory
 - ◆ Quantum mechanics for mathematicians
- Banach and His spaces: Asymptotic Geometric Analysis Miscellany
 - ◆ More convexity
 - ◆ Metric entropy and concentration of measure in classical spaces
 - ◆ Gaussian processes and random matrices
 - ◆ Some tools from asymptotic geometric analysis
- The Meeting: AGA and QIT
 - ◆ Entanglement of pure states in high dimensions
 - ◆ Geometry of the set of mixed states
 - ◆ Random quantum states
 - ◆ Bell inequalities and the Grothendieck-Tsirelson inequality
 - ◆ POVMs and the distillability problem
 - ◆ Gaussian measures and Gaussian variables
 - ◆ Classical groups and manifolds
 - ◆ Extreme maps between Lorentz cones and the \$\$\$-lemma
 - ◆ Polarity and the Santaló point via duality of cones
 - ◆ Hints to exercises
 - ◆ Bibliography
 - ◆ Notation
 - ◆ Index