Barcelona Analysis Seminar **2022–2023**

URL. `https://mat.uab.cat/web/seminarianalisi/`

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Time. 15:00 CET

Room. C3B-158 (Universitat Autònoma de Barcelona)

Online streaming. Click here to join.

John conditions, Harnack chains and boundary Poincaré inequalities

Olli Tapiola

Universitat Autònoma de Barcelona

We consider connections between the local John condition, the Harnack chain condition and weak boundary Poincaré inequalities in an open set $\Omega \subset \mathbb{R}^{n+1}$ with n-dimensional Ahlfors–David regular boundary. First, we show that if Ω satisfies both the local John condition and the exterior corkscrew condition, then Ω also satisfies the Harnack chain condition (and hence, is a chord-arc domain). Second, we show that if Ω is a 2-sided chord-arc domain, then the boundary $\partial\Omega$ supports a Heinonen–Koskela-type weak p-Poincaré inequality for any $1 \leq p < \infty$. We also discuss the optimality of our assumptions and some follow-up questions. This is a joint work with Xavier Tolsa.