Graduate Seminar in Mathematics

Speaker

Dr. Jie Xiao
Memorial University

Thursday, January 29, 2015
1-2pm, HH-3017

A Halfway to the Pölya-Szegö Conjecture for Electrical Capacitance

Abstract: Via a new (1,n) p-isocapacitary inequality for the surface-area in $\mathbb{R}^{n\geq 3}$ this note shows that cap$_2(\Omega,\mathbb{R}^3)\geq$ (3,2) $\sqrt{\pi}\sqrt{\text{area}(\Omega,\mathbb{R}^3)}$ holds for any bounded and convex set $\Omega\subset\mathbb{R}^3$. Whenever (3/2) $\sqrt{\pi}$ (in the open interval $(4/\sqrt{\pi},4\sqrt{2/\pi})$) is replaced by either $4\sqrt{2/\pi}$ or $4/\sqrt{\pi}$, the induced inequality becomes either the Pólya-Scegö conjecture or the Pólya-Scegö inequality for the electrical capacitance.