1062-30-108 **Kai Rajala*** (`kai.i.rajala@jyu.fi`) and **Xiao Zhong**. *Sharp Bonnesen inequality for John domains in $\mathbb{R}^n$.* Preliminary report.

Bonnesen's inequality gives a sharp bound for the difference of the circumradius and the inradius of a planar Jordan domain in terms of the isoperimetric deficit of the domain, showing that for almost isoperimetric domains the difference almost vanishes. Inequalities of this type do not hold in higher dimensions unless the class of domains is restricted such that cusps are ruled out. We present a sharp Bonnesen inequality in all dimensions, assuming John domain conditions from the domain and its complement. This is joint work with Xiao Zhong. (Received August 01, 2010)