1009-52-144 **Xavier Goaoc*** (goaoc@loria.fr), LORIA, 615 rue du Jardin Botanique, B.P. 101, 54602 Villers-les-Nancy, France. *Pinning lines with smooth convex objects.*

Let $\mathcal{C}$ be a collection of subsets of $\mathbb{R}^d$. A *line transversal* to $\mathcal{C}$ is a line that intersects all its subsets. A line ℓ is *pinned* by $\mathcal{C}$ if ℓ is an isolated point of the set of line transversals to $\mathcal{C}$. The *pinning number* of $\mathcal{C}$ is the smallest integer k such that for any line ℓ pinned by $\mathcal{C}$ there exists a subfamily $\mathcal{C}' \subset \mathcal{C}$ of size at most k that pins ℓ. Hadwiger proved in 1957 that an ordered set of disjoint convex sets in the plane has a line transversal if and only if every triple has a line transversal consistent with its ordering. A key step in his proof is establishing that the pinning number of any collection of disjoint convex sets in the plane is 3.

We show any collection of disjoint, compact, smooth, strictly convex objects in $\mathbb{R}^3$ has pinning number at most 5. This generalizes Hadwiger's transversal theorem in $\mathbb{R}^3$ for objects whose sets of transversals satisfy certain topological properties; we illustrate this with the case of disjoint congruent balls. This is joint work with O. Cheong (KAIST, Korea), A. Holmsen (Univ. of Bergen, Norway), S. Petitjean (LORIA-CNRS, France) and S.-H. Poon (T/U Eindhoven, The Netherlands). (Received August 14, 2005)