ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

## 13. Combinatorics

1991 MS Classification: 53,58,52

Ivanov, Alexandr, Moscow State University, Russia

**Linear Networks in Euclidean Spaces $R^n$**

Let $[G, \varphi] = R^{ns}$ be the configuration space of all movable vertices of linear networks with fixed topology $G$ and given boundary $\varphi$. Let $[G, \varphi]_{\min}$ be the set of all minima points of the length functional on $[G, \varphi]$. Consider the set $M_G(\varphi)$ of all local minimal networks of topology $G$ with the boundary $\varphi$. F. Hwang proved that for a tree $G$ the set $M_G(\varphi)$ is at most pointwize. We generalize Hwang's theorem for any topology $G$ and any dimension $n$ in terms of the structure of the set $M_G(\varphi)$. In particular, we prove that $M_G(\varphi)$ is a convex polyhedron, and we caculate its dimension.

Refs. : A. O. Ivanov, A. A. Tuzhilin, Geometry of the set of minimal networks with given boundary and topology. Izvestia RAN, ser. matem., 1997, v.61, pp.119–152.