1025-05-150 **Joseph Brennan**, Department of Mathematics, University of Central Florida, Orlando, FL 32816, and **Guantao Chen*** (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303. *Minimal Generators of cut-ideals of Graphs without K_4-minors.* Preliminary report.

Let $G = (V, E)$ be a graph and $\mathbb{K}$ be a field. We associate each edge-cut $[A, B]$ of G with a coordinate $q_{A|B}$ and each edge uv with two coordinates (s_{uv}, t_{uv}). Let

$$\begin{aligned} \mathbb{K}[q] &:= \mathbb{K}[q_{A|B} \mid [A, B] \text{ is an edge-cut of } G] \\ \mathbb{K}[s, t] &:= \mathbb{K}[s_{uv}, t_{uv} \mid uv \in E] \quad \text{and} \\ \phi_G : & \quad \mathbb{K} \mapsto \mathbb{K}[s, t], \quad q_{A|B} \mapsto \Pi_{uv\in[A,B]} s_{uv} \Pi_{xy\in E-[A,B]} t_{xy}. \end{aligned}$$

The kernel $I(G)$ of ϕ_G is called the cut-ideal of the graph G. Sturmfels and Sullivant conjectured that I_G is generated by quadrics if and only if G contains no K_4-minor. We will address the recent progresses on this conjecture. (Received January 21, 2007)