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Jerrold W Grossman* (grossman@oakland.edu), Department of Mathematics and Statistics, Oakland University, Rochester, MI 48309-4485. *Surprises in the mathematics research collaboration graphs.*

The mathematics research collaboration graph C [resp., C'] has as its vertices all mathematicians who have published research papers. Two vertices are joined by an edge in C [resp., in C'] if the two mathematicians have published a joint paper, with or without other coauthors [resp., without other coauthors]. Using reliable data from *Mathematical Reviews*, we explore the structure of C and C' . (They are examples of “small world graphs” in the sense of Duncan Watts.) For example, C has one large component containing about 208,000 of its 337,000 vertices, and the radius of this component is at most 15. (Surprisingly, the radius of the large component of C' appears to be 15, as well.) There are about 45,000 nonisolated vertices in other components of C , the largest of which has only 39 vertices. Paul Erdős asked whether C' is planar, and we easily show that it is not. Interesting algorithmic questions arise as to how to analyze graphs this large. Some details are available at the Erdős Number Project web site (<http://www.oakland.edu/~grossman/erdoshp.html>). (Received October 01, 2000)