1041-05-102 **Juanjo Rué*** (juan.jose.rue@upc.edu), Departament de Matemàtica Aplicada 2, Edifici Omega, Carrer Jordi Girona 1-3, 08034 Barcelona, Spain, and **Marc Noy** and **Omer Giménez**.

Graph classes with given 3*-connected components: asymptotic counting, limit laws and critical phenomena.*

Consider a family $\mathcal{T}$ of 3-connected graphs, and let $\mathcal{G}$ be the class of graphs whose 3-connected components are graphs in $\mathcal{T}$. We present a general framework for analyzing such graphs classes based on singularity analysis of generating functions. This generalizes previously studied cases such as planar graphs and series-parallel graphs. We provide a general theorem for the asymptotic number of graphs in $\mathcal{G}$, based on the singularities of the exponential generating function associated to $\mathcal{T}$. We derive limit laws for the number of connected components, for the number of edges and for the number of 2-connected components. At last, for some classes under study we show the existence of critical phenomena as the edge density in the class varies. (Received August 06, 2008)