The genus of the Erdős-Rényi random graph and the fragile genus property

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We investigate the genus of the Erdős-Rényi random graph $G(n, m)$, providing a thorough description of how this relates to the function $m = m(n)$, and finding that there is different behaviour depending on which region m falls into.

We then also show that the genus of a fixed graph can increase dramatically if a small number of random edges are added - we thus call this the "fragile genus" property.

This is joint work with Mihyun Kang and Michael Krivelevich.

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