Meeting: 1001, Evanston, Illinois, SS 8A, Special Session on Computability Theory and Applications

1001-03-218 **Valentina Harizanov** and **Russell Miller*** (rmiller@forbin.qc.edu). *Spectra of relations on the random graph.*

The random graph is a countable, computably presentable graph with properties quite similar to those of the countable dense linear order. We add to the list of these properties by proving that the random graph is spectrally universal: every countable graph $\mathcal{G}$ embeds into the random graph in such a way that the image of the embedding (as a relation on the random graph) has the same spectrum as the structure $\mathcal{G}$ itself. We give additional results which, combined with a theorem of Hirschfeldt, Khoussainov, Shore, and Slinko, show that the possible spectra of countable structures in finite languages are precisely the spectra of unary relations on the random graph.

Both the random graph and the countable dense linear order are Fraïssé limits, for the classes of finite graphs and finite linear orders, respectively. Possible future work on these topics will attempt to generalize our results to arbitrary Fraïssé limits of classes of finite or finitely generated structures.

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