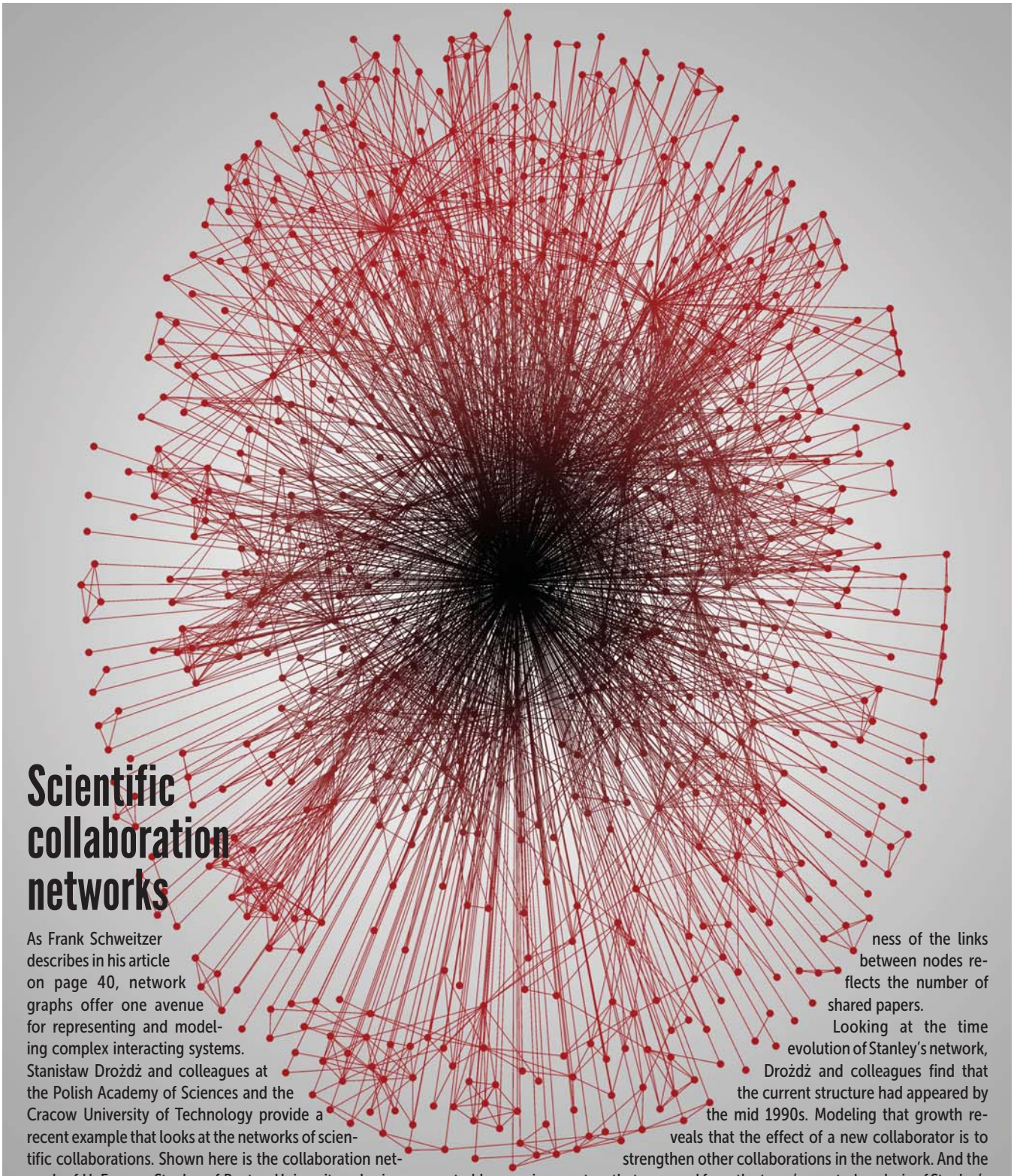

Scientific collaboration networks

As Frank Schweitzer describes in his article on page 40, network graphs offer one avenue for representing and modeling complex interacting systems. Stanisław Drożdż and colleagues at the Polish Academy of Sciences and the Cracow University of Technology provide a recent example that looks at the networks of scientific collaborations. Shown here is the collaboration network of H. Eugene Stanley of Boston University, who is represented by the node in the center. The other nodes are the 738 scientists who had coauthored at least one paper with him through March 2016. The thickness of the links between nodes reflects the number of shared papers.

Looking at the time evolution of Stanley's network, Drożdż and colleagues find that the current structure had appeared by the mid 1990s. Modeling that growth reveals that the effect of a new collaborator is to strengthen other collaborations in the network. And the eigenvectors that emerged from the team's spectral analysis of Stanley's network revealed collaborative subnetworks and relations among them. (S. Drożdż et al., *J. Informetrics* **11**, 1114, 2017.) —RJF

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