Origins of bright soliton transparency to Bogoliubov quasi-particles\textsuperscript{1} ZAIJONG HWANG, MAXIM OLSHANII, University of Massachusetts Boston — Bogoliubov quasi-particles can pass through a one-dimensional bright soliton without reflection at all energies.\textsuperscript{2} Reflectionless properties of this kind usually originate from a supersymmetric structure of the corresponding Hamiltonian.\textsuperscript{3,4} However, we give a strong indication that in this case\textsuperscript{1}, the mathematical mechanism enabling full spectrum transparency of a scattering object does not fall into any of the conventional paradigms.

\textsuperscript{1}Supported by NSF, ONR, and IFRAF