

# Black hole superradiance in Bose-Einstein condensates: amplification and instabilities

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Superradiance is a radiation enhancement effect occurring by energy extraction from a rotating spacetime. Being a kinematical effect it can also happen in gravitational analogues, where the energy for the amplification is extracted from the fluid motion. We discuss such an effect in Bose-Einstein condensates with different geometries and show that the well known instability of multiply quantized vortices can be attributed to a dispersive version of the ergoregion instability based on superradiant amplification in rotating spacetimes with no horizon.

## Summary

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