

# A BRITE view on the massive O-type supergiant V973 Scorpii: Hints towards internal gravity waves or subsurface convection zones

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Stochastically-triggered photospheric light variations reaching ~40 mmag peak-to-valley amplitudes have been detected in the O8Iaf supergiant V973 Scorpii as the outcome of two months of high-precision time-resolved photometric observations with the BRiGht Target Explorer (BRITE) nanosatellites. The amplitude spectrum of the time series photometry exhibits a pronounced broad bump in the low-frequency regime (<0.9 c/d) where several prominent frequencies are detected. A time-frequency analysis of the observations reveals typical mode lifetimes of the order of 5-10 days. The overall features of the observed brightness amplitude spectrum of V973 Sco match well with those extrapolated from two-dimensional hydrodynamical simulations of convectively-driven internal gravity waves randomly excited from deep in the convective cores of massive stars. An alternative or additional possible source of excitation from a subsurface convection zone needs to be explored in future theoretical investigations.

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