

A dim candidate companion to ϵ Cephei

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Using a vector vortex coronagraph behind the 1.5-m well-corrected subaperture (WCS) at Palomar, we detected a second object very close to ϵ Cephei, a δ Scuti F0 IV star. The candidate companion, ~ 50 times fainter than ϵ Cephei, if physically associated, is a late-type K or early M star, and lies at an angular separation of 330 mas, or $1.1 \lambda/D$ for the WCS, making it the smallest angle detection ever realized with a coronagraph in terms of λ/D units. The projected separation of the putative companion is ~ 8.6 AU, most likely on a highly eccentric orbit. The recently detected near-infrared excess is thus likely not due to hot dust. Moreover, we also show that the previously reported IRAS 60 μ m excess was due to source confusion on the galactic plane.

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