G P25 Pulsations in pre-main sequence stars. The case of HD 3428

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HD 34282 has been found to pulsate during a systematic search for short-term photometric variability in Herbig Ae/Be stars with the goal of determining the position and size of the pre-main sequence instability strip. Simultaneous Strömgren photometry is used in the frequency analysis, yielding two frequencies with values of $\nu_1 = 79.5$ and $\nu_2 = 71.3$ cd⁻¹. The main period, with a value of 18.12 min., represents the shortest period for a δ Scuti-type pulsator ever observed. A preliminary seismic modelling, including instability predictions and rotation effects, has been attempted. Both, main sequence and pre-main sequence models predict modes in the range of 56 to 82 cd⁻¹ (between 648 and 949 μ Hz), corresponding to oscillations of radial order n from 6 to 8. The mode identification is not discriminant due to the large error bars attached to the data, therefore, all possible non-radial and radial modes up to $\ell=3$ are compatible with the observed oscillations.