The Ap star variability and the ESA Gaia mission

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In this presentation, we will review the performances of the Gaia mission with respect to the variability of chemically peculiar stars (of the CP2 category). The Gaia mission will allow a systematic variability detection of all variable sources among the estimated one billion observed stars up to magnitude 20. The Gaia time sampling is quite irregular, with gaps of typically a month. Still, the probability to recover the periods of strictly periodic signals is high. Chemically peculiar stars are not a rare phenomenon, about 8% of B5-B9 and 5% of A0-A8 are chemically peculiar. So Gaia will detect and discover a very large number of Ap stars, with their rotational period. The most precise band of Gaia is broad and therefore the integrated signal might be dampened by the opposite effects of blocking and back-warming. Gaia BP and RP spectro-photometric information may be able to alleviate this difficulty.