A SYNOPTIC VIEW OF THE MAGELLANIC CLOUDS:
VMC, GAIA AND BEYOND

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Photometric study of the stellar overdensity north of the Small Magellanic Cloud

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We present a study of the stellar overdensity near the northern edge of the Small Magellanic Cloud (SMCNOD). We investigated whether it contains pulsating variable stars using the fourth release of the Optical Gravitational Lensing Experiment based on their 3-dimensional spatial distribution and their physical properties. We found four fairly spatially concentrated anomalous Cepheids and eight evenly distributed RR Lyrae stars to be most likely members of this overdensity. The probability of finding the observed number of pulsating stars at the coordinates and distances of the SMCNOD by chance is very low for anomalous Cepheids (0.7 %) but higher for RR Lyrae stars (13 %). The properties of the variables likely to be associated with the SMCNOD match those of such variables in the SMC field population. We thus confirm the presence of a small overdensity using intermediate-age variable stars located in the SMCNOD and conclude that it probably originates from the SMC rather than being the remnant of an accreted dwarf galaxy.