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SIMULTANEOUS MULTICOLOUR OBSERVATION AND CHARACTERISATION OF SATELLITES  
USING NEUROMORPHIC SENSORS.

**Abstract**

Using two neuromorphic sensors fitted to twin-mounted 40 cm telescopes at the Zimmerwald observatory in Bern, Switzerland, event-based data were acquired simultaneously in different colour bands. Taking advantage of the sensor's microsecond temporal resolution and high dynamic range, continuous event-rate plots and event-rate colour ratio plots were produced and analysed for a range of satellites. Fine detail of specular reflections was evident that enabled the characterisation of different reflecting surfaces based on the specular reflection intensity, angular width, and colour change. The data proved to be very useful not only for characterising reflecting surfaces, but also for inferring attitude and rotation states for tumbling objects. The results indicate that neuromorphic sensors could be a very useful tool for satellite material identification and satellite characterisation more broadly.