



**IAUS-REG-NUMBER:** IAUS-62

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**AFFILIATION:** ESO

**CONTRIBUTION:** Online

**TITLE:** NGC 4361 - a high ionization PN with surprising low ionization knots

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**ABSTRACT:**

The very high ionization PN NGC 4361 (PN G294.1+43.6) was observed with MUSE in Wide Field Mode during commissioning and an analysis of the structure and physical conditions in this unusual nebula is reported. We nickname it 'The Measles Nebula' since in H and He emission it is quite diffuse, yet in [N II] 6583Å emission, more than a hundred compact knots ('Measles') are strikingly revealed across the face of the nebula. Images in emission lines (range 4750-9300Å) and electron density and temperature diagnostics are presented. Spectra of 102 of the Measles have been extracted and analysed: they show much lower ionization than the high ionization nebular body, higher extinction and a modest range of offset velocities from the systemic. Some of Measles display groups with almost linear alignments towards the central star. Over the fainter outer region of NGC 4361, a dwarf spiral galaxy with HII region emission at redshift 0.021 (87 Mpc) was serendipitously detected, and is briefly discussed.