



Contribution ID: 200

Type: Oral Presentation

## Acoustic resonators above sunspot umbrae

Wednesday, 10 July 2013 14:50 (20 minutes)

### Abstract content <br> &nbsp; (Max 300 words)

The three-minute oscillations in the chromosphere above sunspot umbrae are explained by means of an acoustic resonator. In the vertical magnetic field above umbrae a cavity forms between the photosphere and transition region that acts as a leaky resonator, where the oscillations generate traveling waves that propagate upward into the solar corona. One-dimensional numerical simulations using the ideal magnetohydrodynamic equations demonstrate the existence of the resonator. The shapes and peaks in the resonating spectrum raise the possibility of using the resonator as a means to determine the chromospheric temperature profile above umbrae. A numerical study will be presented of different initiators of the oscillations, as well as the influence of the shape and height of the chromospheric cavity.

### Apply to be<br> considered for a student <br> &nbsp; award (Yes / No)?

No

### Would you like to <br> submit a short paper <br> for the Conference <br> Proceedings (Yes / No)?

Yes

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**Session Classification:** Space Science

**Track Classification:** Track D2 - Space Science