
Using BiSON to detect solar g modes

James Kuszlewicz*¹

¹School of Physics and Astronomy, University of Birmingham (UoB) – Edgbaston, Birmingham, B15
2TT, United Kingdom

Abstract

The unambiguous detection of individual solar internal g modes continues to elude us. Unlike well observed acoustically driven pressure (p) modes, g modes are much more of a challenge to detect due to their evanescent nature in the Sun's outer convective envelope. With the aid of new additions to calibration procedures, as well as updated methods to combine multi-site timeseries more effectively, the noise and signal detection threshold levels in the low-frequency domain (of which the g modes are expected to exist) have been greatly improved. In the BiSON 23-year dataset these levels now rival those of GOLF/VIRGO, and with a much greater frequency resolution available due to the long time series there is an opportunity place more constraints on the upper limits of individual g mode amplitudes. Here we detail recent work dedicated to the challenges of observing low-frequency oscillations using a ground-based network, including the role of the window function as well as the effect of calibration on the low frequency domain.

*Speaker