Borexino Calibration, Precision Measurement and Seasonal Variations of the ^{7}Be solar neutrino flux SZYMON MANECKI, Virginia Tech — Borexino, a real-time calorimetric detector for low energy neutrino spectroscopy, is located in the underground laboratories of Gran Sasso, Italy (LNGS). The experiment's main focus is the direct measurement of the ^{7}Be solar neutrino flux of all flavors via neutrino-electron scattering in an ultra-pure scintillation liquid. After years of construction, the first data was collected in May 2007, and since then, over 740 live days have been acquired for the analysis. Years of operation and extensive calibration campaign led by Virginia Tech have opened new fields that extend beyond Borexino's initial mission. Currently, the precision measurement on the ^{7}Be line approaches an extraordinarily low level of 4%. That allows us to extract the Seasonal Variation of the neutrino-flux which I am mainly involved in at Virginia Tech; Studies of such fluctuations will deliver definite evidence for the Solar origin of the signal. Borexino also serves as a powerful observatory for anti-neutrinos from Supernovae as well as for Geo-neutrinos. Design and the detector calibration will also be covered in this discussion.

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