

Abstract Submitted  
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**Electron energization at the mantle of non-magnetic planets as the source of planetary X-ray emission** VITALI SHAPIRO, UC San Diego Physics Dept., KEVIN QUEST, UC San Diego ECE Dept., ROBERT BINGHAM, Rutherford Appleton Lab, UK — In this paper it is argued that recently observed X-ray emission from planet Venus [1] can be explained as a combination of bremsstrahlung and line K-shell radiation produced by the interaction of energetic electrons with the neutral atmosphere. Electrons are energized due to interaction with lower hybrid waves excited at the ionospheric boundary (planetary mantle) by the so called modified two stream instability. This mechanism is similar to the mechanism previously proposed for the explanation of X-ray emission from comets [2,3]. Arguments are discussed why this mechanism presents more plausible explanation of Venus emission than fluorescent model (fluorescent scattering of the solar X-ray by planetary atmosphere) originally proposed by Dennerel et.al.

- [1] Dennerel et al, Astronomy and Astrophysics, 386, 319, 2002
- [2] Bingham et al., Science, v. 275. 49. 1997.
- [3] Shapiro et al., J Geophys. Res., v. 104, 2537, 1999

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