

Abstract submitted to the  
NATO ADVANCED RESEARCH WORKSHOP  
New materials for thermoelectric applications: theory and experiment  
September 19 - 25, 2011 Hvar, Croatia

**Extreme Correlations:  
or How I learned Not to Worry and Love the Infinite U limit**

Sriram Shastry

*Physics Department, University of California Santa Cruz, 1174 High Street, Santa Cruz, USA*

Submitted : 12-09-2011

My frustrating and apparently eternal engagement, in the problem of infinite U systems may yet have a happy ending- as I will try to convince you in this talk.

In particular, the physics of the tJ model, and in particular the one electron propagator is discussed in a new scheme that I have recently proposed [1].

The state that emerges is termed as the Extremely Correlated Fermi Liquid, and the constituent equations describing its Physics are explicitly written down as a “double barrel” hierarchy involving a Fermi liquid type self energy, a dynamical spectral weight and two vertex functions. An initial solution is discussed, arising from considerations usual to high dimensions. Remarkable agreement is observed in the spectrum with ARPES data from optimally doped BISSCO families, with both synchrotron and laser source light sources as outlined in Ref. [2].

- [1] B. S. Shastry, *Extremely Correlated Fermi Liquids*,  
arXiv:1102.2858 (2011), Phys. Rev. Letts. **107**, 056403 (2011).
- [2] G.-H. Gweon, B. S. Shastry and G. D. Gu, *Extremely Correlated Fermi Liquid Description of Normal State ARPES in Cuprates*,  
arXiv:1104.2631 (2011), Phys. Rev. Letts. **107**, 056404 (2011).