

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Multipartite Entanglement classes via Negativity Fonts¹ SANTOSH SHELLY SHARMA, Depto. de Física, Universidade Estadual de Londrina, Londrina PR, Brazil, NARESH KUMAR SHARMA, Depto. de Matemática, Universidade Estadual de Londrina, Londrina — The number and types of K-way negativity fonts in canonical form of an N-qubit state depends on the nature and amount of quantum coherences in the state. Non zero determinants of negativity fonts, characterizing a given state, are easily written down and reflect the entanglement microstructure of the superposition. A classification criterion for multipartite entangled states, based on negativity fonts in canonical state and decomposition of global partial transpose in terms of K-way partially transposed operators, is proposed. Inequivalent subclasses are labelled by N-qubit local unitary invariants. A complete classification of four qubit states is obtained. The number of major families for $N > 3$ is found to be $2^N - 2N$. Classification of four qubit states indicates that a small number of relevant polynomial invariants is enough to classify N-qubit states.

¹This work is supported by Faep Uel, Fundação Araucária and CNPq, Brazil.

Santosh Shelly Sharma
Universidade Estadual de Londrina, Londrina PR, Brazil

Date submitted: 09 Dec 2011

Electronic form version 1.4