1056-62-2147 **Li Zhu*** (lzhu@math.wsu.edu), 1630 NE VALLEY RD X106, PULLMAN, WA 99163, and
**Haijun Li**. *Coherent risk measure for multivariate Pareto distributed losses.* Preliminary report.

Extremal dependence has been observed in diverse fields, such as data network, financial risk management, environmental impact assessment, etc. The extremal risk fueled by extremal dependence and its contagious adverse effects have been best illustrated from the current financial crisis. This research focuses on extremal risk assessment for financial portfolio that has multivariate Pareto distributions. A multivariate coherent risk measure corresponds to a set of deterministic portfolio that represents a vector of extra capitals needed so that the resulting positions are acceptable to regulators/supervisors. In this research, we study tail conditional expectation (TCE), a multivariate coherent risk measure, for dependent Pareto distributed financial losses. TCE used in continuous risk analysis describes the expected amount of risk that could be experienced given that a potential risk exceeds a threshold value, and is preferable than the value-at-risk (VaR), a risk measure that is widely used but fails to satisfy the coherency principle. We derive explicit tractable lower and upper bounds for TCE, which can be applied to diverse fields for accurate estimates of extremal risks. (Received September 23, 2009)