Abstract Submitted
for the APR08 Meeting of
The American Physical Society

NuSOnG: A new high-precision neutrino scattering experiment at the TeVatron[1] GEORGIA KARAGIORGI, Columbia University — A new high-energy, ultra-high statistics neutrino experiment, NuSOnG (Neutrino Scattering On Glass), has been proposed to study neutrino scattering at high energies with extremely high precision. I present the conceptual design of the experiment, and discuss some of its unique discovery potential for direct searches for new physics at the Terascale. These searches include searches for new light neutrino properties, new interactions manifested through rare events, and new particles such as light neutrissimos, light vector bosons, etc. which appear in models for Beyond the Standard Model physics. A particular example which highlights the discovery potential of NuSOnG, is the search for evidence of "matrix freedom" or non-unitarity in the neutrino sector. Non-unitarity can manifest itself in a number of ways, such as through flavor-dependent neutrino couplings, or instantaneous flavor transitions, both of which would cause observable effects at NuSOnG.

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Date submitted: 11 Jan 2008 Electronic form version 1.4