

Selected Abstracts from Other Physical Review Journals

Abstracts of papers which are published in **other Physical Review journals** and may be of interest to *Physical Review C* readers are printed here. The Editors of *Physical Review C* routinely scan the abstracts of **Physical Review D** papers. Appropriate abstracts of papers in other *Physical Review* journals may be included upon request.

Maximal neutrino mixing and maximal CP violation. Harald Fritzsch and Zhi-zhong Xing, *Sektion Physik, Universität München, Theresienstrasse 37A, 80333 München, Germany*. (Received 16 November 1999; published 9 March 2000)

We propose a phenomenological model of lepton mixing and CP violation based on the flavor democracy of charge leptons and the mass degeneracy of neutrinos. A nearly bimaximal flavor mixing pattern, which is favored by current data on atmospheric and solar neutrino oscillations, emerges naturally from this model after explicit symmetry breaking. The rephasing-invariant strength of CP or T violation can be as large as one percent, leading to significant probability asymmetries between $\nu_\mu \rightarrow \nu_e$ and $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ (or $\nu_e \rightarrow \nu_\mu$) transitions in the long-baseline neutrino experiments. [Phys. Rev. D **61**, 073016 (2000)]

Probing quark-gluon correlation functions. Xiaofeng Guo, *Department of Physics and Astronomy, University of Kentucky, Lexington, Kentucky 40506*; Jianwei Qiu, *Department of Physics and Astronomy, Iowa State University, Ames, Iowa 50011 and Physics Department, Brookhaven National Laboratory, Upton, New York 11973-5000*. (Received 2 November 1999; published 3 April 2000)

We review the applicability of the QCD factorization theorem to multiple scattering in deeply inelastic lepton-nucleus scattering. We

show why an $A^{1/3}$ -type nuclear enhancement can be calculated consistently in perturbative QCD. We derive the transverse momentum broadening of the leading pions in deeply inelastic lepton-nucleus collisions. We argue that the measurement of such transverse momentum broadening can provide direct information on the multiple-parton correlation functions inside a nucleus. We also estimate the numerical values of the broadening at different values of x_B and Q^2 . [Phys. Rev. D **61**, 096003 (2000)]

Matter effects on neutrino oscillations in gravitational and magnetic fields. H. Athar, *Department of Physics, Tokyo Metropolitan University, Minami-Osawa 1-1, Hachioji, Tokyo 192-0397, Japan*; José F. Nieves, *Laboratory of Theoretical Physics, Department of Physics, P. O. Box 23343, University of Puerto Rico, Río Piedras, Puerto Rico 00931-3343*. (Received 16 June 1999; published 18 April 2000)

When neutrinos propagate in a background, their gravitational couplings are modified by their weak interactions with the particles in the background. In a medium that contains electrons but no muons or taus, the matter-induced gravitational couplings of neutrinos are different for the various neutrino flavors, and they must be taken into account in describing the phenomena associated with neutrino oscillations in the presence of strong gravitational fields. Here we incorporate those couplings in that description, including also the effects of a magnetic field, and consider the implications that they have for the emission of high-energy neutrinos in the vicinity of active galactic nuclei. [Phys. Rev. D **61**, 103001 (2000)]