

**2002 CONGRESS – TUESDAY SESSION TU-A5
CONGRÈS 2002 - RÉSUMÉS DE SESSION TU-A5 (Mardi)**

[TU-A5]

**PARTICLE AND STRING THEORY /
THÉORIE DES CORDES ET DES PARTICULES**

**TUESDAY, JUNE 4
MARDI LE 4 JUIN**

ROOM / SALLE 2004 F

Chair: J. Ng, TRIUMF

TU-A5-1 10h00

ROBERT MANN, University of Waterloo

Holography and Conserved Charges

The holographic hypothesis -- namely that physical processes in a bulk spacetime can be mapped without loss of information into some theory on the boundary of the spacetime -- has received increased attention in recent years due to new developments in string theory. There is now a definite formulation of the hypothesis which posits a relationship between quantum gravity in an asymptotically anti de Sitter spacetime and a conformal field theory on its boundary. A more recent generalization of this hypothesis to asymptotically de Sitter spacetimes is also receiving serious attention. I shall review the basic ideas underlying such conjectures and discuss their implications for computing conserved charges in a gravitational theory in both the de Sitter and anti de Sitter cases. Several examples will be given along with a discussion of some outstanding interpretive problems.

TU-A5-2 10h30

The Geometry of the Higgs Sector, **Greg Trayling**, W.E. Baylis, *University of Windsor* — A geometric approach to the standard model in terms of the Clifford algebra $SO(1,3)$ has recently been advanced^[1]. In this algebraic model, the gauge group of the standard model is not arbitrarily imposed upon an abstract space but arises uniquely from the rotational symmetries of a higher-dimensional manifold. One of the key features of this approach is that it illuminates the nature of the Higgs isodoublet field, completely determining its transformation properties and weak hypercharge assignment. The talk will center upon subsequent work using the Higgs field to extend the principle of gauge invariance into the extra dimensions with the aim of placing renormalizable constraints upon mass and C.K.M. matrix parameters.

1. G. Trayling, W.E. Baylis, *J. Phys. A: Math. Gen.* **34**, 3309-3324 (2001).

TU-A5-3 10h45

MARK A. WALTON, University of Lethbridge

Gluing Conditions and Branes in Gauged WZW Models

Gluing conditions are proposed to characterize D-branes in gauged WZW models. From them boundary conditions for the group-valued and the subgroup-valued fields are determined. We construct a gauged WZW action for open strings that coincides classically with those written previously, when the gluing conditions are imposed. These considerations are also generalised from the usual case of vector (symmetric) gauging to asymmetric gauging. The so-called A- and B-branes of the $SU(2)/U(1)$ model are then related by an axial-vector duality.

11h15 Coffee Break / Pause café

TU-A5-4 11h30

CHARLES GALE, McGill University

Matter Under Extreme Conditions: Squeezing Lepton Pairs out of Broken Symmetries

We discuss two possible signatures of symmetry breaking that can appear in dilepton spectra, as measured in relativistic heavy ion collisions. The first involves scalar-vector meson mixing and is related to the breaking of Lorentz symmetry by a hot medium. The second is related to the breaking of Furry's theorem by a charged quark-gluon plasma. Those signals will be accessible to upcoming measurements to be performed at the GSI, RHIC, and the LHC.

TU-A5-5 12h00

T-Odd Triple Correlation Asymmetries in Charmless Q Decays, **A. Datta**, *Université de Montréal* — We study triple correlation CP asymmetries in Λ_b decays and find all but one asymmetry vanish in the standard model. Hence a non zero measurement of triple correlation asymmetry in such decays will clearly signal new physics

12h15 Session Ends / Fin de la session