Abstracts (Addendum)

89 The Historical and Cultural Transformation of the Diatonic Harp in Paraguay

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The modern Latin American diatonic harp traditions seem to derive directly from the performance traditions in the Jesuit settlements of the seventeenth and eighteenth centuries. A number of sources, both written and iconographic, give details of these seventeenth-century Spanish harps, which exhibit similar features to the modern Latin American harp. The interesting question is how, when and for what purpose these harps were brought over from Europe and how this instrument has transformed throughout time. According to various sources, the arpa (harp) was brought to the New World from Spain with the first conquistadores, and later with lay colonists and various missionary orders beginning in the sixteenth century. Along with the vihuela--which is a precursor to the modern day violin and viola--it is said to have thrived more than any other European instrument in the Spanish American Viceroyalties (of New Spain and Peru). This analysis will discuss and explore the history, structure, performative and philosophical context of the diatonic harp in Paraguay.

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90 Mapping between two methods of for finding representation of so(3) and so(2,1) algebras

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Within quantum mechanics, there is a wide range of problems, whose structures suggest an underlying algebra, most often the familiar angular momentum so(3) algebra and its non-compact version so(2,1). Thus, to fully appreciate the physical problem, one needs to understand the mathematical substructure, and hence, some time must be spent analyzing the so(3) and so(2,1) algebra and their representations. We came across two different methods of finding representations for these algebras. One of the methods, which is detailed in the reference 1, we refer to it as the linear method; meanwhile, the other method by M. Rocek, (reference 2) offers a method, which we term the quadratic method. We investigated these methods very carefully and found a prescription that allows us to establish a one-to-one correspondence between these two representations. In the poster, we will summarize these methods and describe the mapping between them.

1) B.G. Adams, J. Cizeka and J. Paldus,: "Lie Algebraic Methods And Their Applications to Simple Quantum Systems", Advances in Quantum Chemistry, Vol. 19, ed. P-O. Lowdin, Academic Press, New York, 1987.

2) M. Rocek: "Representation theory of the nonlinear SU (2) algebra", {Phys. Lett. B}, Vol. 255, (1991), pp. 554-557.