



48th Annual Meeting of the Brazilian Biophysical Society

2 - 5th October, 2024, USP, São Paulo



SYNTHESIS AND CHARACTERIZATION OF AMINO ACIDS ORGANOMETALLIC COMPLEXES

Lidiane Thaís da S. Abadessa¹, Margareth K.K.D. Franco², John W. B. de Araújo¹, Marcio A. Bulla¹,
Edson Kakuno³, Fabiano Yokaichiya¹

¹Department of Physics, Universidade Federal do Paraná, Curitiba

²Instituto de Pesquisas Energéticas e Nucleares-IPEN, São Paulo

³Universidade Federal da Integração Latino-Americana, Foz do Iguaçu

Presenting author: abadessalidiane@gmail.com

The biochemical function of metal ions in many processes is of fundamental importance, both in the human body and in optoelectronic devices. Most metal cations in living organisms interact with proteins, and therefore the study of metal-protein binding sites has attracted much attention in scientific research. Amino acids, which contain proton-donating groups (carboxylic acid, -COO) and proton-accepting groups (amino, -NH₂), are fascinating organic materials for applications in semi-organic nonlinear optical (NLO) crystals. Single crystals of amino acids complexed with transition metals exhibit several important physical properties, such as optical (especially nonlinear optics), piezoelectric, and ferroelectric properties. These studies also contribute to the understanding of neurodegenerative diseases, such as Parkinson's, Alzheimer's and Creutzfeldt-Jakob Disease. The zwitterionic characteristic of amino acid molecules facilitates the manipulation of this substance. In this context, the present study was dedicated to the characterization, by X-ray diffraction as a function of temperature and Raman Spectroscopy, of pure and complexed crystals of Nickel L-Histidinate, Nickel L-Alaninate and Copper D-Alaninate, grown by the method of slow evaporation of an aqueous solution, with the aim of enriching studies in this field.