



Special Colloquium Announcement

of the Collaborative Research Centre 951
"Hybrid Inorganic/Organic Systems for Opto-Electronics"

Carlos Cesar Bof Bufon

Brazilian Nanotechnology National Laboratory (LNNano), Sao Paulo, Brazil
Brazilian Center for Research in Energy and Materials (CNPEM), Sao Paulo, Brazil

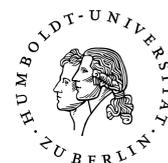
Charge transport mechanisms across hybrid organic-inorganic vertical heterojunctions

Time: Monday, 27.01.2020, **15:15**

Place: IRIS Adlershof, Zum Großen Windkanal 6,
Room 007 (ground floor).

Collaborative Research Centre 951
Department of Physics
Humboldt-Universität zu Berlin

Email: sfb951@physik.hu-berlin.de
Tel.: +49 30 2093 66380
www.physik.hu-berlin.de/sfb951



Partners



Charge transport mechanisms across hybrid organic-inorganic vertical heterojunctions

Carlos Cesar Bof Bufon

Brazilian Nanotechnology National Laboratory (LNNano), Brazilian Center for Research in Energy and Materials (CNPEM), Zip Code 13083-970, Campinas, Sao Paulo, Brazil.

The understanding of the charge transport mechanisms across thin organic and hybrid thin films is of fundamental importance for the design of novel electronic and optoelectronic devices. In this work, vertical heterojunctions based on hybrid materials and interfaces (Hy) are fabricated and investigated by using self-released metallic nanomembranes as a top contact electrode. The charge transport across Au/Hy/Au heterojunctions, consisting of various molecular systems, with thicknesses ranging from 4 to 60nm, can be set/mapped by using temperature and applied electric-field as tuning knobs. The nanomembrane-based contacts provide a robust electrode on top of the molecular layers, as well as on Surface-Anchored Metal-Organic Frameworks (SURMOFs). Such an approach avoids the metal interdiffusion and/or short circuits via pinholes that are commonly found in thin-film based molecular structures. Furthermore, we achieve a fabrication approach that is entirely integrative on a chip; several components are created in parallel using well-established semiconductor processing technologies. This presentation will cover both, the heterojunction's fabrication processes as well as the electrical characterization of each device system.