# Spectroscopic Characterization of Molecular Materials

https://wwwdisc.chimica.unipd.it/SCMM/

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The SCMM group (Spectroscopic Characterization of Molecular Materials group) is oriented to international collaborations, especially with European and Asian institutions. The research focuses on the characterization of materials. Two main classes of chemical systems are considered:
- Materials for renewable energies and circular economy,
- Materials for microelectronics and artificial intelligence.

Physical-chemical properties of electro and/or photoactive molecular systems are investigated to suggest innovative devices to support green and sustainable developments and advanced and digitalized systems. Research topics include dynamics of chemical reaction networks, stress and aging effects, heat and mass transfer processes, interfacial and bulk mechanisms, biomaterials with algae and fungi utilization.

1. *Formic acid and formate salts for chemical vapour deposition of copper on glass substrates at atmospheric pressure*, New Journal of Chemistry, **2021**, 45, 20133-20139.
2. *Capture, storage and utilization of carbon dioxide by microalgae and production of biomaterials*, Environmental and Climate Technologies, **2021**, 25, 574-586.
3. *Die-Attach Bonding with Etched Micro Brass Metal Pigment Flakes for High-Power Electronics Packaging*, ACS Applied Electronic Materials, **2021**, 3, 4587-4603.
4. *Electrical Conductivity and Water Effects in Phosphoric Acid Solutions for Doping of Membranes in Polymer Electrolyte Fuel Cells*, Environmental and Climate Technologies, **2021**, 25, 467-478.
5. *Thermomechanical stress in GaN-LEDs soldered onto Cu substrates studied using finite element method and Raman spectroscopy*, Journal of Raman Spectroscopy, **2020**, 51, 2083-2094.