

Residui vetrosi da schede elettroniche come materiali adsorbenti

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³CNR-INO sede di Brescia

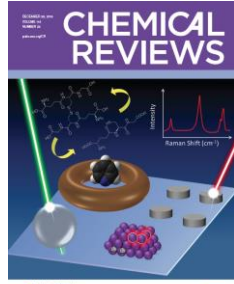
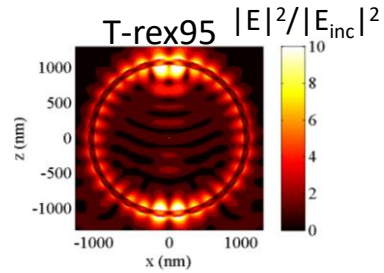
⁴Laboratorio di Chimica per le Tecnologie, Dipartimento di Ingegneria Meccanica e Industriale, Università degli Studi di Brescia

⁵Laboratorio NORA, Dipartimento di Ingegneria dell'Informazione, Università degli Studi di Brescia

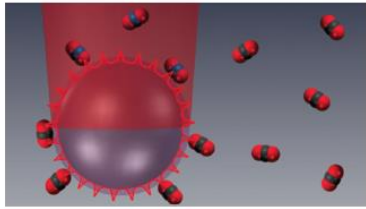
⁶Università degli Studi di Cagliari



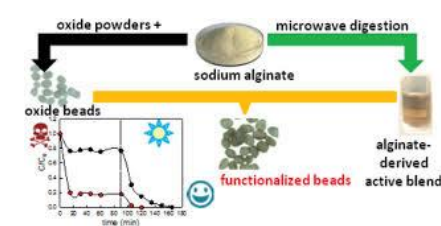
Optical antennas for SERS and photocatalysis



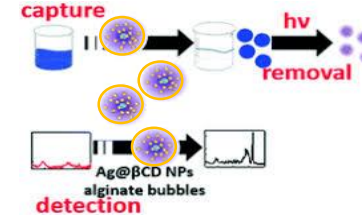
Enhanced Raman Scattering with Dielectrics, *Chem. Rev.*, 2016, 116, 14921–14981



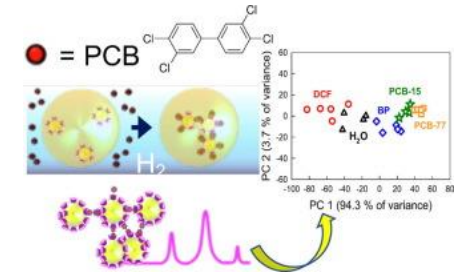
Environmental detection and remediation



Adv. Sustainable Syst., 2020, 1900112

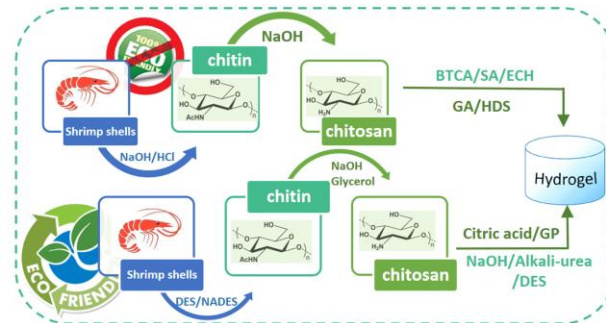


Environmental Science: Nano, 2020, 7, 3888-3900

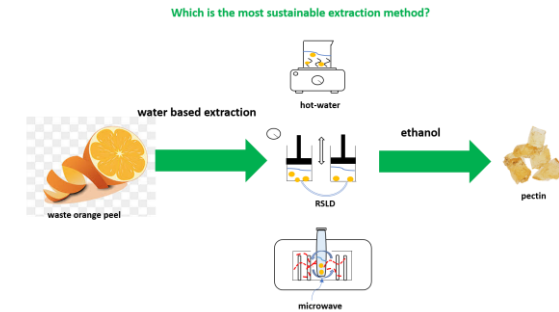


Chemical Physics Letters, 2021, 775, 138674

Recovery of high-value products from food waste

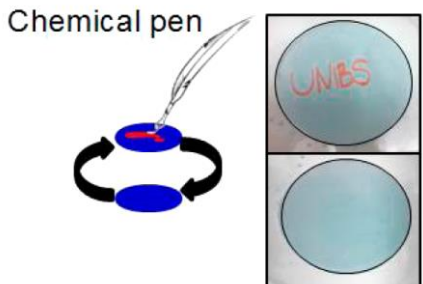


Sustain. Chem., 2020, 1, 325-344

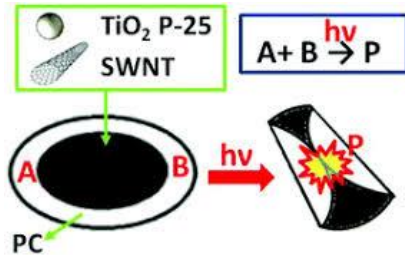


Molecules, 2021, 26(6), 1766

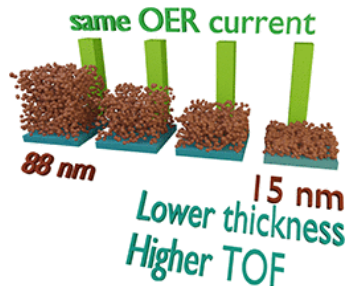
Unconventional smart materials and electrocatalysts



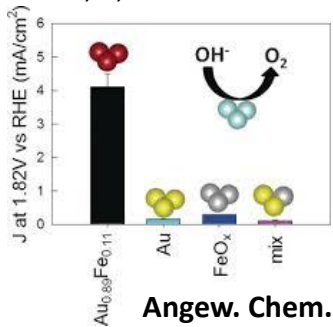
ACS Appl. Mater. Interfaces, 2015, 7, 28708-28713



Nanoscale, 2017, 9, 11446

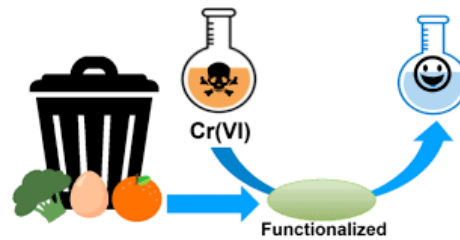


J. Phys. Chem. C 2022, 126, 21759–21770

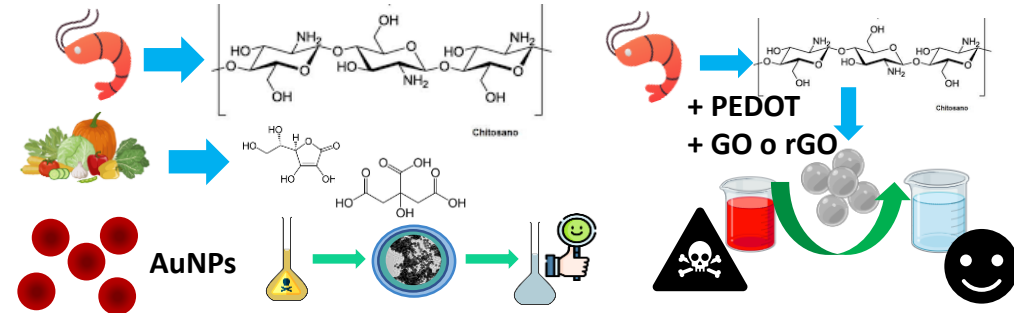


Angew. Chem. Int. Ed., 2017, 56, 6589-6593

Food waste-based materials for environmental detection and remediation

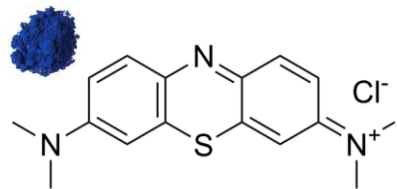
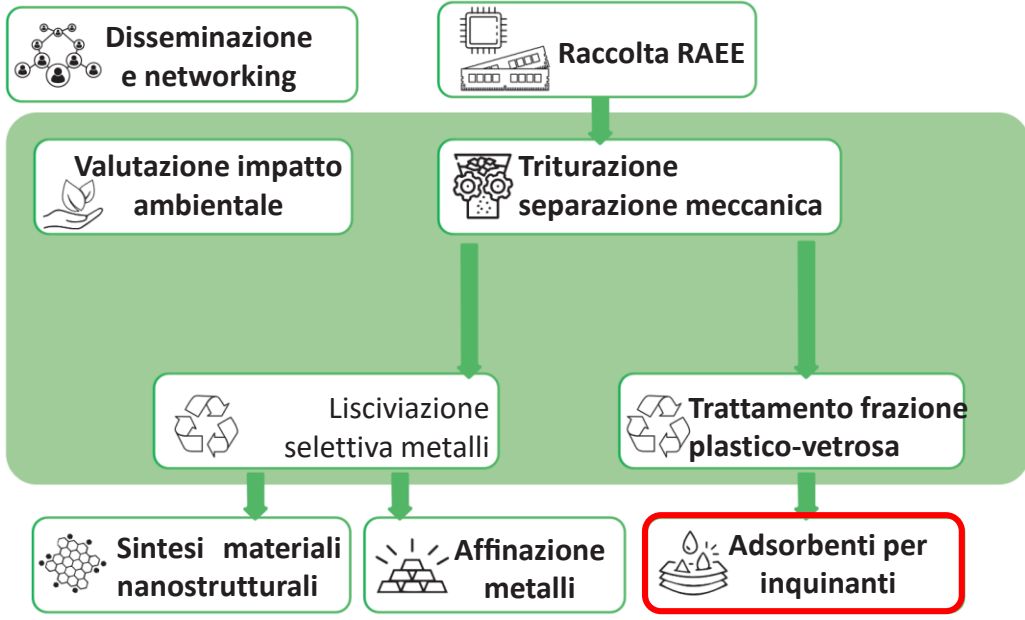


Environmental Sustainability, 2020, <https://doi.org/10.1007/s42398-020-00132-y>

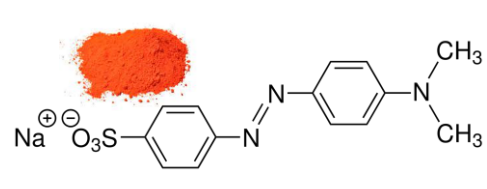


Environmental Nanotechnology, Monitoring & Management 2022, 18, 100686

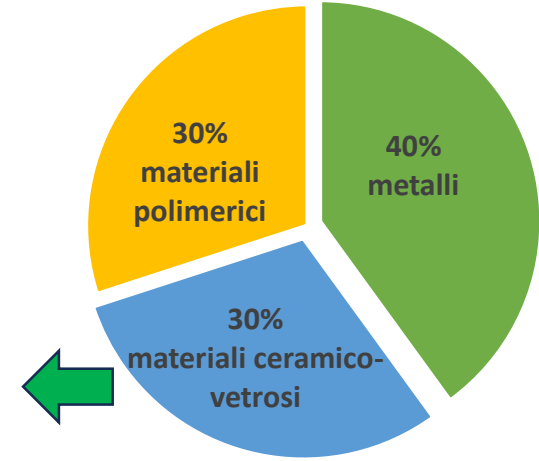
under preparation



Blu di Metilene

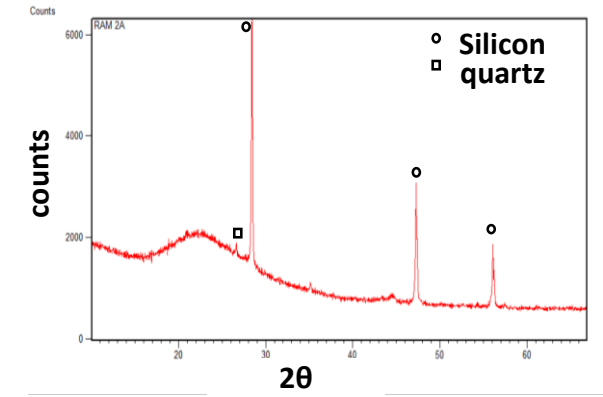
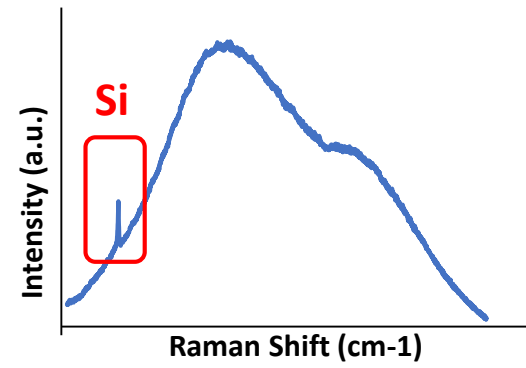
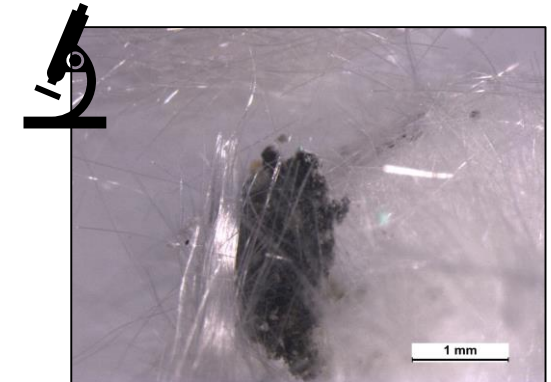
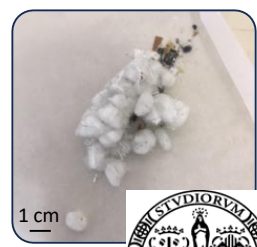


Metilarancio



23% vetronite

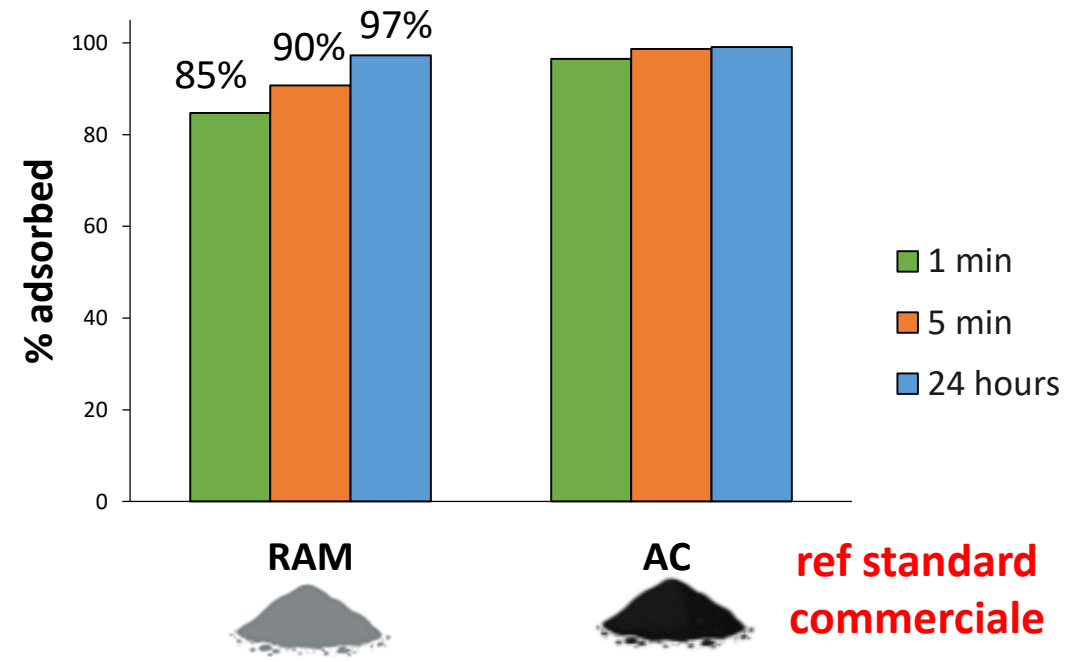
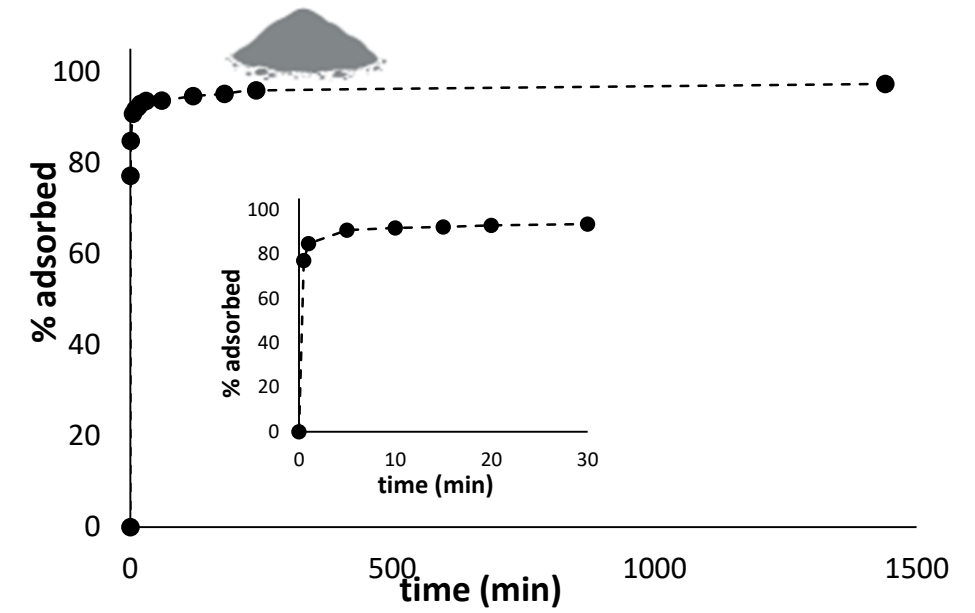
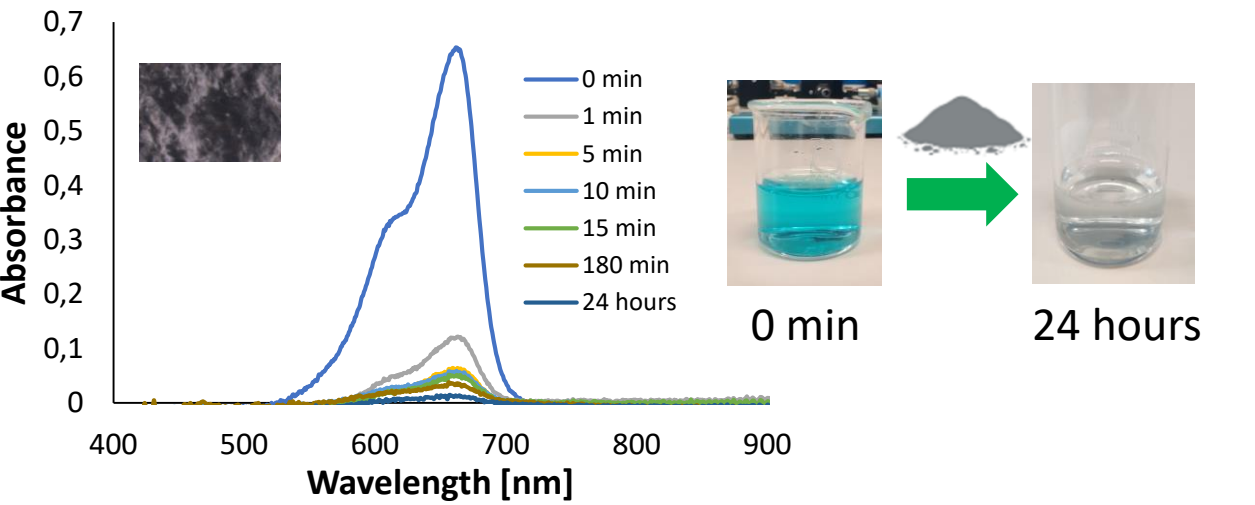
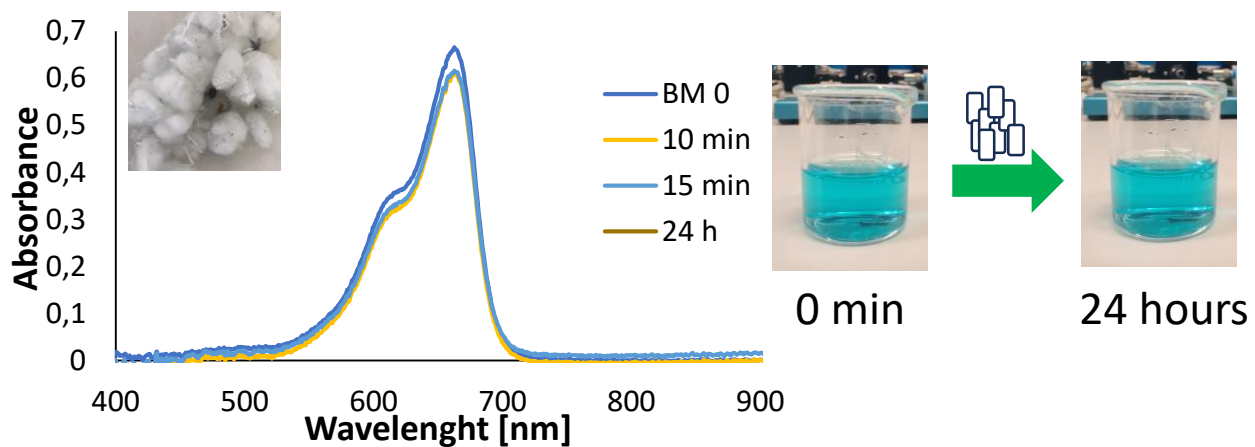
fibre di vetro



Adsorption tests

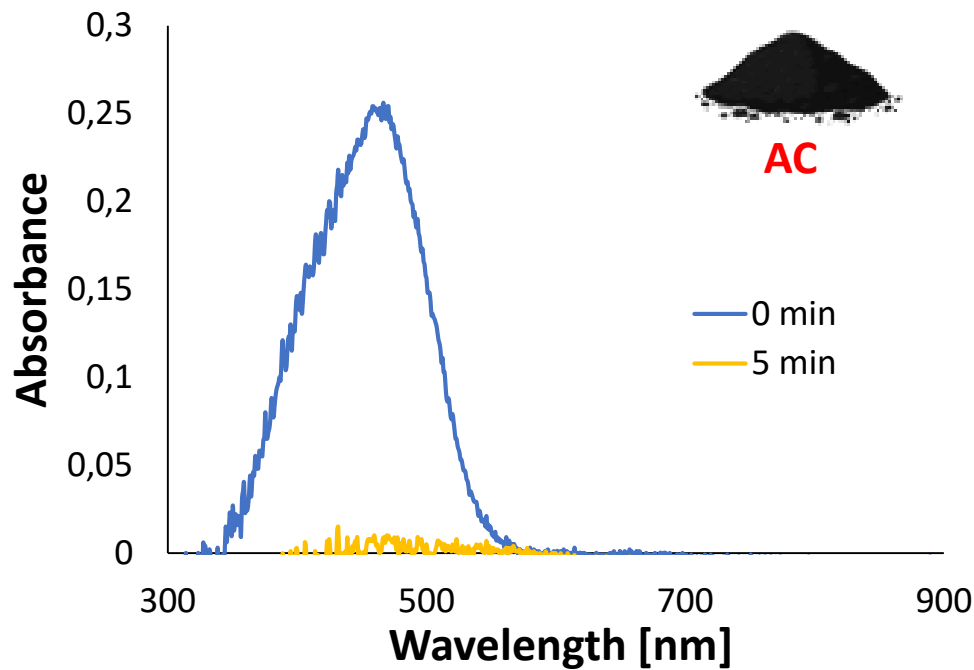
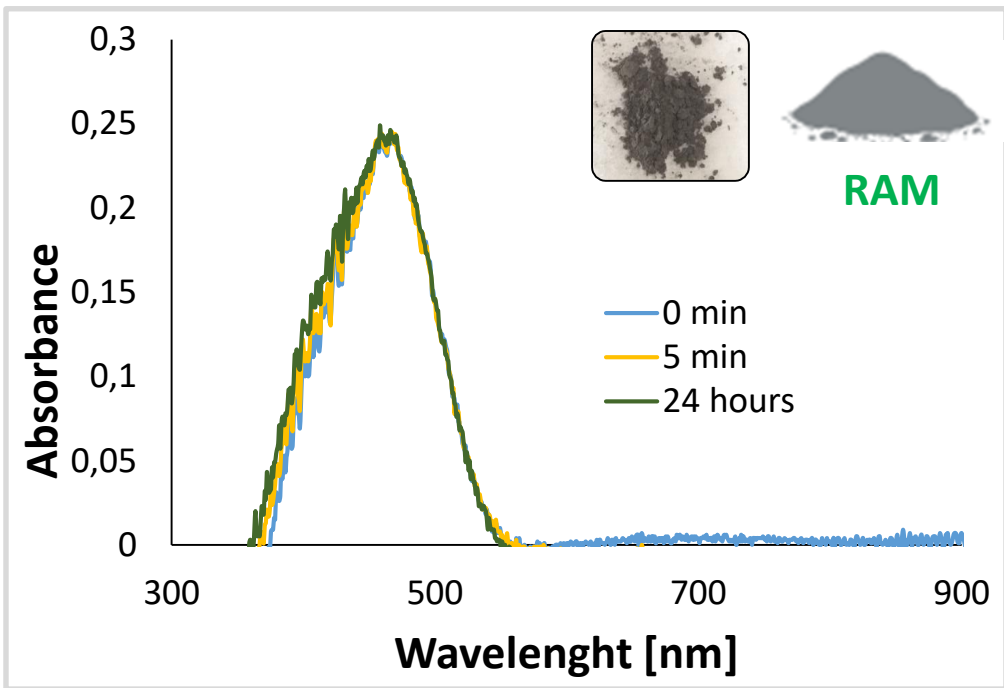


Blu di Metilene $10^{-5}M$

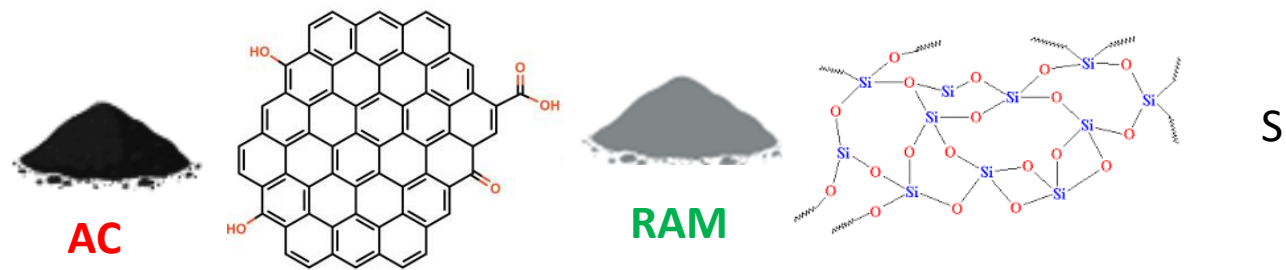
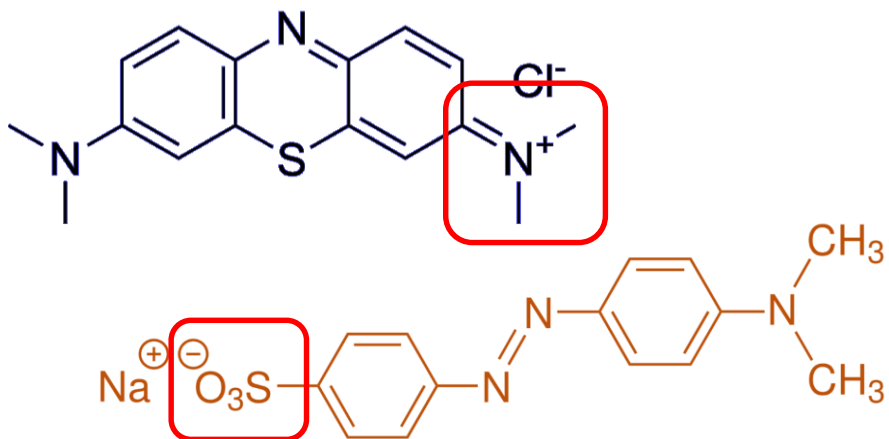




Metilarancio 10^{-5} M



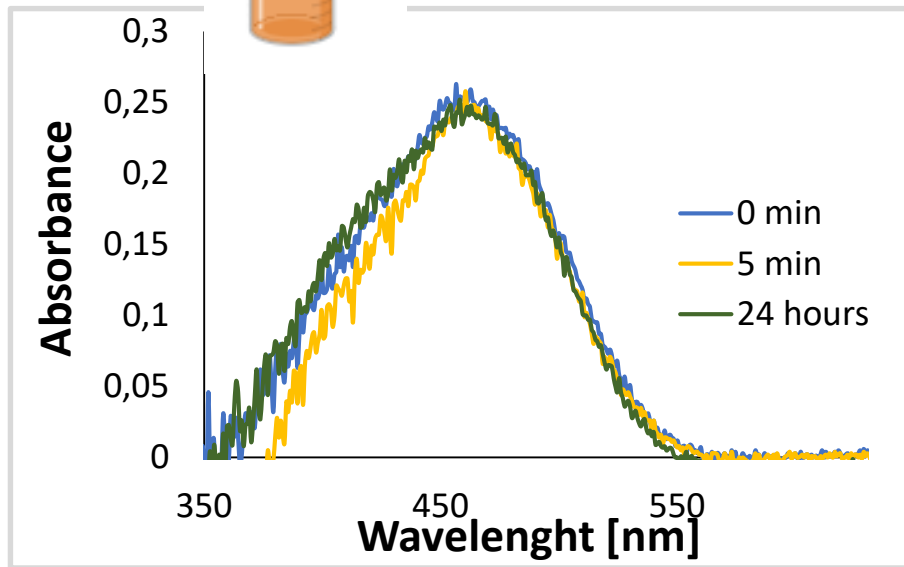
	Z potential (mV)
RAM	-23.5
AC	-26



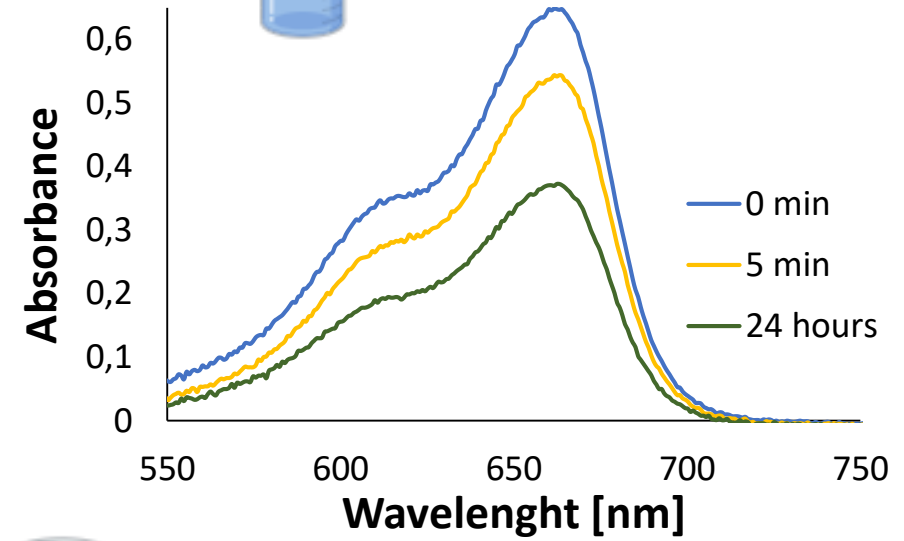
Reference: vitro



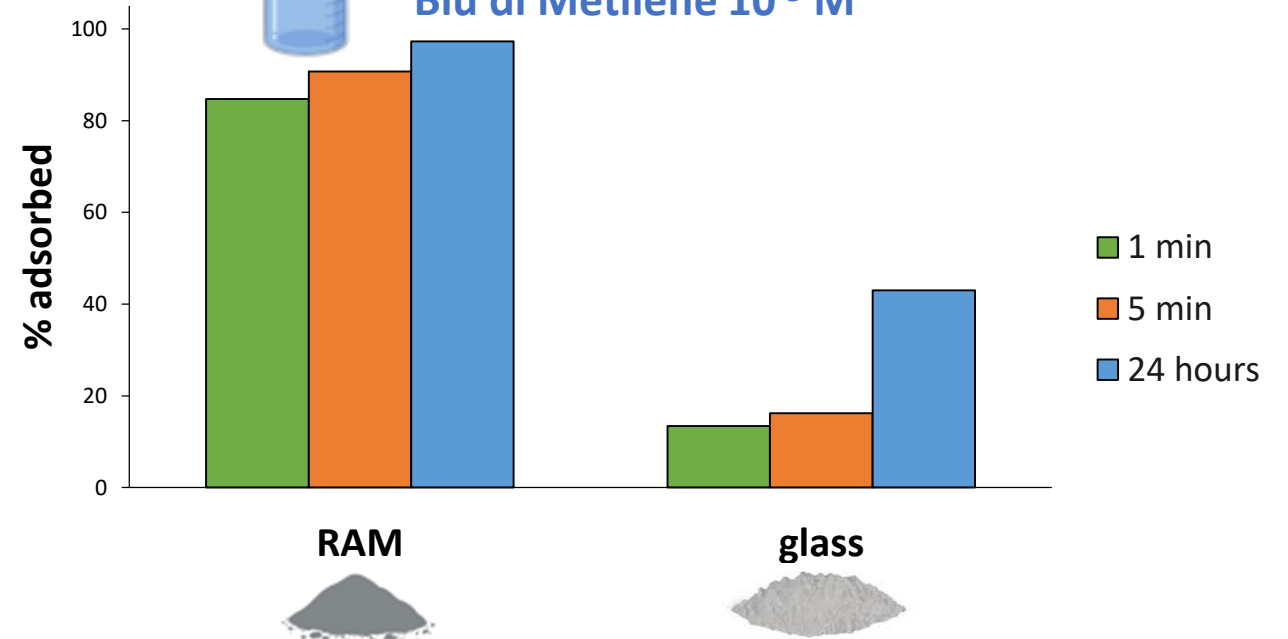
Metilarancio 10⁻⁵ M



Blu di Metilene 10⁻⁵ M



Blu di Metilene 10⁻⁵ M



Conclusioni

- buon materiale adsorbente nei confronti di MB
- migliori performance rispetto al vetro comune



to do

- completare caratterizzazione (SEM, area superficiale)
- confronto con vetronite non trattata
- confronto con RAM non trattata
- riutilizzo
- attività di fotocatalisi e fotodegradazione
- estensione ad altri inquinanti



GRAZIE PER L'ATTENZIONE

Lavoro svolto all'interno del progetto SMaRT PCBs (*Sustainable Materials Recycling Technology for Printed Circuit Boards*) finanziato da Bando RAEE 2020 del Ministero della Transizione Ecologica.



Prof. Ivano Alessandri



Saad Javaid, PhD student



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