

X-nano: invisible matters for a sustainable future

X-nano fosters the green energy transition by crafting atoms at the nanoscale. These invisible matters unlock the potential of existing green technologies making them more efficient, cost competitive and less materials intensive. We are currently developing nanosolutions addressed to the various carbon-free energy technologies: Li-ion batteries and redox flow batteries, carbon-free hydrogen and future nuclear energy technologies. All X-nano techs are based on green processes with minimal waste, emissions and energy use.

X-nano is a spin-off of the Istituto Italiano di Tecnologia, IIT. We leverage on a solid and growing portfolio of patented technologies and know-how in nanomaterials and nanocoatings production by plasma, laser and thermally assisted processes in supersonic and subsonic flow jets.

We will present the scientific bases of two of our most advanced families of nanomaterials: hierarchical carbon nano onions electrode for high power density redox flow batteries and ductile glasses for extreme environments like fusion and generation IV nuclear reactors.

We will discuss the urgency to develop a European supply chain of advanced materials and components for the energy transition in order to substitute the declining “fossil” industries, without losing competitiveness and wealth.