PhD Topic for Research at LRCS Amiens, and ICMCB Bordeaux, FRANCE https://www.lrcs.u-picardie.fr/ ;	
Topic Title	**Crystal Chemistry of Electrodes for Sodium-Ion Batteries**
Advisor	MASQUELIER Christian, christian.masquelier@u-picardie.fr, +33662518972
Co-advisor	CROGUENNEC Laurence, laurence.croguennec@icmcb.cnrs.fr
Co-advisor	CHOTARD Jean- Noël, jean-noel.chotard@u-picardie.fr
Co-advisor	OLCHOWKA Jacob, jacob.olchowka@icmcb.cnrs.fr
Funding Source,	PEPR Batteries, HIPOHYBAT Project
Web sites of Laboratories involved	https://www.lrcs.u-picardie.fr/ https://www.icmcb-bordeaux.cnrs.fr/
Web sites of Advisors	https://www.christian-masquelier.fr/
Date of publication of the offer	March 10th, 2025
Deadline for application	March 31st, 2025
Date of start of the Project	October 1st, 2025
Description of the Topic	The goal of this collaborative PhD work is to explore the crystal chemistry of new phosphate-containing inorganic materials to be used as insertion / extraction hosts to be used in Na-ion batteries. A comprehensive study of transport and stability properties will be carried out in liaison with the structural features. The approach is to find, discover, new compositions that possess essential features for an attractive electrode material in Na-Ion batteries: eco-friendly elements, long-life, low cost. The PhD work will be conducted in LRCS Amiens and in ICMCB Bordeaux, two complementary CNRS-affiliated laboratories in France, which have extensive collaboration records on similar topic(s) (see 2 recent references)
Techniques to be used	Various synthesis routes will be explored: sol-gel, SPS sintering, mechanochemistry. Characterization techniques will include state-of-the-art X-ray diffraction, wide access to neutron and X-Ray Synchrotron facilities, SEM and TEM electron microscopy, Mossbauer, Raman and NMR spectroscopies, electrical measurements.
Skills of the Candidate we look for	Candidates should possess a strong background in solid state chemistry and physical chemistry. The candidate will have to show strong motivation and interest in working in a collaborative environment and a strong appetite for research. The candidate must be rigorous, curious, ready for nice challenges and skilled in oral presentations and paper writing.
Contact (s)	C. Masquelier, L. Croguennec, J.N. Chotard & J. Olchowka
References	S. Park, K. Choudhary, Z. Wang, P. Canepa, J. N. Chotard, D. Carlier, F. Fauth, L. Croguennec, C. Masquelier, *Nature Materials*, 24, 234-242 (2025) S. Park, J. N. Chotard, D. Carlier, I. Moog, M. Duttine, F. Fauth, A. Iadecola, L. Croguennec & C. Masquelier, *Chem. Mater.,* 34(9), 4142-4152 (2022)
List of documents to provide	CV + motivation letter + list of references + transcripts for the past three years