ILV

Institut Lavoisier de Versailles

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Institut Lavoisier de Versailles (ILV)

Coordonnées

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Itinéraire vers ce lieu **Site de l'UFR des Sciences** 45 avenue des États-Unis 78035 Versailles cedex

Discipline(s)

Chimie

Discipline(s) enseignée(s)

L3 Chimie : Thermodynamique des systèmes électrochimiques. Application aux procédés industriels (Resp. UE depuis 2020)

(CM/TD : Jonction M/Électrolyte, Ifaradique, Icapacitif, Piles, Électrolyseurs, Batteries, Voltamétrie, Accumulateur, énergie spécifique...)

L3 Licence professionnelle chimie formulation Parcours applications, analyses et naturalité en cosmétique (ISIPCA), Resp. Parcours Cosmétique et membre du comité de perfectionnement

(CM/TD : Solvants (extraction), mélanges, diagrammes liquide-vapeur)

M1 Chimie : Enseignement d'électrochimie (Resp. module)

(CM/TD/TP : Electrochimie fondamentale sur métal, Cinétique électrochimique, Expressions mathématiques des courants)

Thèmes de recherche

Research topics

Fundamental (Photo)electrochemistry researches at semiconductors (III-V, Si,…), metals (Au, Pt, …) interfaces in aqueous and non-aqueous solvents (DMF, CH3CN, …) with a strong expertise in liquid ammonia (Patm, -55°C)

» Understanding of solvents contributions on interfacial electrochemical mechanisms (dielectric constant, viscosity, pH scale, chemical intermediates stability (i.e radicals…))

» Performing the reactivity of solvated electrons in liquid ammonia (i.e using Pt microelectrodes as internal probe)

» Understanding fundamental interfacial reactions (passivating films, hydrogen evolution, oxygen reduction, metal electrodeposition…)

» Determination of semiconductor's diagram energy evolution (impedance measurements, lock-in amplifier, photoluminescence…)

» Monitoring electrode surface/interfaces modifications (impedance measurements, photoluminescence, quartz crystal microbalance, chronopotentiometry, Pt microelectrodes as internal probes, disc ring, wettability by angle contact, XPS, p-ARXPS, MEB-TEM…)

Towards applied researches and surface treatments of (opto)electronic devices

» Electrochemical treatments of (opto)electronic devices in liquid ammonia in collaboration with C2N (DR. J.L. Pelouard) : i.e New strategies of selective pattern dissolution

» Validation of modified electrodes transfer in clean rooms (elaboration of thin masks)

» Electrochemical engineering for the detection of metal impurities on supporting electrodes

» Since 2012, 4 patents and 6 international extensions

Main expertise

(photo)electrochemistry in liquid ammonia, III-V semiconductors, metal electrodes, impedances

Research projects

» Coordinator, PI: ANR EPINAL « Efficient Passivation of InP in Liquid Ammonia » (EPINAL, 335,4 k€, 03-2018-03-2022).

» Coordinator, PI: Projet Prématuration CNRS / C2N, « Développement d'un réacteur préindustriel pour la passivation des SC III-Vs dans NH3 Liq » (mai 2019-avril 2022).

» Partner (50%) Appel à Projets cellule énergie CNRS : « PALMYRE "Pile à Ammoniac utilisant un éLectrolyte Mixte oxYde solide / hydRoxydE fondu ?» (2023) (Coordinator, PI, Pr. V. Lair ENSCP)

List of publications

» 78 scientific papers, (including 24 proceedings with referee)

Activités / CV

Education

2010: Research Habilitation at University of Versailles St Quentin-en-Yvelines (France)
1997: Ph D in Electrochemistry at University of Versailles St Quentin-en-Yvelines (France)
1994: Master's Degree in Electrochemistry at Paris Sorbonne University (France)

Current Position

Since 2021: Full professor at University of Versailles St Quentin-en-Yvelines (France)
Since 2021: Appointed member of National Committee in Scientific Research, section 14 (CoNRS)
Since 2020: Member of the board and committee at the "Interface" doctoral school (ED 573) of Paris Saclay University.
Since 2016: Appointed member of the Management Committee of the Lavoisier Institute of Versailles.
Since 2015: Research head of "Electrochimie Physico-chimie aux Interface" team at Lavoisier Institute of Versailles.
Since 2006 In charge of liquid ammonia electrochemistry thematic

Previous positions

2020-2021: Elected member of Research Council at University of Versailles St Quentin-en-Yvelines
1998-2021: Associate professor at University of Versailles St Quentin-en-Yvelines (France)
1997-1998: Postdoc in electrochemistry at King's College of London (England)

Additional information

» Director of 11 thesis with a supervision rate of 73% (5 at 100% and 6 at 50%)

» 12 external thesis examination committees (including 4 as rapporteur and 1 as president)

» Participation in 5 monitoring thesis committees (including 3 in progress)

» HCERES examination committee of Institut Carnot Bourgogne (2023)

» Reports of “Region” expertise (2021 : Région Bourgogne Franche-Comté ; 2023: Région Nouvelle Aquitaine)

» ANR expertises and COFECUB (2017)