

Emmanuel CINI

Innovation-R&D Manager
Materials/Processes-Metallurgy



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Valenciennes, France



Profile

Senior metallurgist in R&D centers of major leading groups in Energy, Steel & Mining, Defense and Mechanical industries

Objective

Bring my energy and experience to innovative materials projects, as researcher and/or principal investigator

Competences

Characterize, model and design new materials & tests
Perform scientific and technical surveys
Manage and motivate multi-disciplinary teams
Build up and lead complex research projects
Contribute to scientific recognition

Skills

Intellectual curiosity, assimilative capacity
Search for excellence
Creative thinking leading to innovative approaches
Communication based on listening and arguing
Capacity to challenge academic experts

Work Experience

- 2019** **R&D Manager - France** *MTEF, Courville/Eure*
METALOR Powder metallurgy, Silver-based pseudo-alloys, electrical contacts
Project management, training, technology watch, scientific network development
- 2018** **Steels & Metallurgy Expert** *Sèvres*
CTIF R&D projects in foundry, additive manufacturing, alloys development and metallurgical transformations
Technical expertise, laboratory tests, prototyping, operational advice
Training, popular science, relations with academics, institutionals and industrials
- 2017** **Research Manager - Processes and Materials** *Senlis*
CETIM Scientific orientation and budgetary monitoring of the Metallic Materials and Surfaces division
Animated and managed technical commissions for industry and professional organizations (eg. metal hardware and furniture, springs, fasteners/fixings, forging)
Collaborated with Strategic Intelligence, Innovation and Valorization services
- 2013-2016** **Head of Materials Modeling section** *VRCF, Aulnoye-Aymeries*
VALLOUREC Technical and commercial partnerships in France (CEA/EDF theses) and Europe (ICAMS, Tubacex)
Lead scientist for multi-scale, physics-based modeling of creep and FEM simulation of Hydrogen embrittlement of Chromium martensitic steels (Abaqus[®], Isight[®])
Certified trainer for Vallourec University
- 2010-2013** **Head of Creep section**
Team manager (3 tech., 2 ing. + consultants & internships)
In charge of creep facility (100 testing positions) and activity (quality standards + internal R&D)
Designed new steel grades for boiler components (Thermo-Calc[®] + TEM, EBSD), used a Figure Of Merit (FOM) approach, created and validated a new « one shot » recrystallization test
- 2008-2010** **Metallurgy R&D Project leader**
Developed innovative experimental method for creep testing (nano-indentation + relaxation)
Applied *Materials by Design* approach for selecting steel strengthening precipitates via Ab Initio techniques
- 2006** **R&D Project leader** *CIME BOCUZE, St Pierre en Faucigny*
PLANSEE Powder metallurgy of Tungsten alloys
Optimized withdrawal during sintering to get a higher yield
- 2000-2005** **Project leader** *CEZUS, CRC, Ugine*
FRAMATOME Metallurgy of Zirconium alloys, from ores to tubes
Expertise on hot extrusion and lubrication, developed a laboratory press for high temperature plastic deformation and microstructure evolution (Zy-4), surface pickling and residues analysis (M5[®]-ZrNb1)
Supported multi-party research project dedicated to numerical simulation of forming processes (SimulForge)
Managed a small team (2 tech., 1 ing.), supervised a corrosion test line (equipment and procedures)

Work Experience *continued*

- 1997-2000**
ARCELOR
MITTAL **Research engineer** *IRSID, Maizières-les-Metz*
Physico-chemical modeling of refractories for continuous casting, thermodynamic models for molten steel,
Microstructural characterizations and expertise of defective parts (failure/fracture analysis + corrosion)
Supervised technicians and trainees
- 1995-1997**
CEA **Research associate** *CEREM, Grenoble*
Finalization of doctoral thesis, extension of theoretical part: bibliographic survey on grain refinement
phenomena. Completion of Ph.D. at the Institut National Polytechnique de Grenoble (INPG)
- 1994-1995**
AIR LIQUIDE **International Volunteer in Business** *Air Liquide Laboratories, Tsukuba (Japan)*
Volunteered for National Service in an industrial research laboratory out of France
Non destructive testing of welding beads (TIG), comparative study on corrosion behaviour of tubing materials
(stainless steels, Nickel-base alloys) against electronics specialty gases (HBr...)
- 1991-1994**
CNES **Doctoral research fellow** *Grenoble*
Experimental part of Ph.D. thesis: exploratory research on the solidification behaviour and microstructure of
refractory alloys (W-Re-Ta-Nb...) elaborated under microgravity and ultra-high vacuum conditions in a 50m
high drop tube / theoretical part: thermodynamic analysis of phase transitions through nucleation and
spinodal decomposition (unmixing)

Education

- 1997**
Grenoble INP **Doctor of Philosophy** *Institut National Polytechnique, Grenoble*
Materials Science and Engineering, co-funded by CEA and CNES
- 1991**
Phelma **Engineer** *École Nationale Supérieure de Physique, Grenoble*
Physicist, Materials

Languages

- French** Mother tongue
English Bilingual (Cambridge Certificate in Advanced English - Grade A)
German Non technical communication
Italian Beginner to intermediate level
Spanish Beginner
Japanese Beginner

Communication

- Publications** More than ten articles in international scientific reviews and proceedings
- Teaching** In charge of internal training dedicated to *Steels for PowerGen applications-Tubes & Pipes*, as part of the
Metallurgy Seminar given at Vallourec Research Center France (VRCF)
Certified trainer for Vallourec University
Organizer and host of annual meetings dedicated to the applications of numerical modeling at Vallourec,
Materials Modeling Workshops

More on...

- Materials**
behaviour High temperature deformation & microstructure evolution : creep, relaxation, recrystallization
Permeability of porous materials : development of a calculation model based on porometry
- Hot & Cold work** Extrusion, piercing (seamless pipes), rolling, sintering, isostatic compression, ECAE/ECAP
- Characterization**
techniques Physical (particle sizing methods, pyrometry...), Mechanical (nano-indentation, tensile tests...)
Spectro-chemical (SEM-EBSD, FIB-TEM-EDS, XR-peak analysis...)
- Thermo**
-dynamics Modeling of metallic alloys (Fe-Ni, Fe-Mn-C-S systems: liquid phase, sub-networks...)
Nucleation, spinodal decomposition (unmixing) of refractory alloys,
Calculation of nucleation enthalpies of binary compounds by Ab Initio methods, DFT (Materials Design Inc.)
- kinetics** ThermoCalc[®], MatCalc[®]

More on... *continued*

Physical Study of interactions between metallic and oxide phases in steelmaking processes (Ceqcsi®, Gemini®) :
-chemistry Wettability, impregnation and corrosion phenomena

Interests

Nordic walking, swimming
Sciences, [Arts and Culture](#)