

1. First name, last name, academic degree/title:

Monique Calvo-Dahlborg, PhD, CNRS Senior Scientist (CRHC)

2. Affiliation (institution, country):

Universite de Rouen Normandie & CNRS, France

3. E-mail and telephone number:

monique.calvo-dahlborg@univ-rouen.fr

4. Field/s of specialization:

High Entropy Alloys, metallic disordered systems, rapid solidification

5. Statement on scientific career (posts held, research activities, prizes, awards, etc):

CNRS scientist since 1985.

- CNRS senior scientist at the Group of Physics of Materials (University of Rouen Normandie, France) since 2005:
 - Head of group "FP6 IMPRESS Project University Rouen" (2005-2009).
 - Head of group "FP7 AccMet Project University Rouen" (2011-2016).
- CNRS scientist at Laboratoire de Science et Génie des Matériaux Métalliques (Ecole des Mines, Nancy, France) 1986-2005:
 - On leave of absence in Sweden: Department of Neutron Physics, Royal Institute of Technology, Stockholm and Studsvik Neutron Research Laboratory, Studsvik (1991-1995).
 - Head of group "Disordered systems" (1995-2000).
 - Head of group "The extremes of solidification" (2001-2005).
 - Head of group "FP6 IMPRESS Project INPL, Nancy (2003-2005).

Member of Laboratory council. Laboratory Europe and International delegate for CNRS. Laboratory Training Course delegate for CNRS.

PhD of University of Caen in Materials Sciences. "Study of the embrittlement of metallic glass ribbons in terms of toughness and by atom probe" (1985).

Distinctions:

- Award of Göran Gustavsson postdoctoral fellowship at Department of Neutron Physics, Stockholm, Sweden (1991).
- Ames Laboratory Associaship off-site collaborator, USA (2003-2010).

- Honorary Research Fellow at Swansea University, UK (2016-2021).

Research activities: Correlation process-production-structure-property (from liquid to solid) of non-crystalline metallic systems: liquid state and influence of precursor liquid on solidification product; rapid solidification; non-stable and/or disordered systems; structure and microstructure, from atomic level to ton; high entropy alloys.

Contract coordinations:

- National: France (1987-1991).
- Bilaterals: Franco-Russian (1997-2000, 2004), Franco-Ukrainian (1998, 2000, 2001), Franco-German (2000, 2001), Franco-American DOE (2002-2004).
- Local scientific coordinator for EU FP6 IMPRESS (2003-2009) and EU FP7 ACCMET (2011-2016).

Contributions to collaboration projects:

- National: French (1987-1991, 1986-1987), Swedish (1991-1994).
- Bilaterals: Franco-Russian (1997-2000, 2004), Franco-Ukrainian (1998, 2000, 2001) Swedish-Ukrainian (2000), Franco-German (2000, 2001), Franco-American DOE (2002-2004).
- EU BRITE EURAM (1989-1991), EU FP6 IMPRESS (2004-2009) and EU FP7 ACCMET (2011-2016).

Organization of conferences:

- Euroconference'93, 1993, Studsvik, Sweden, 84 participants.
- Euroconference'94 "Neutrons in Disordered Matter", 1994, Stockholm, Sweden, 56 participants, Co-chairman.
- 12th international Conference LAM12, Liquid and Amorphous Metals, 2004, Metz, France, Co-organization, 200 participants.

Edition:

- Proceedings of the Euroconference'93 at Studsvik, Eds: M.Dahlborg and U.Dahlborg, Physica Scripta T50/2 1994.
- "Abstracts Book & Programme of Euroconference'94", June 1994, Department of Neutron Physics, Stockholm, Sweden. Eds: M.Dahlborg and U.Dahlborg.
- "Neutrons in disordered matter, Proceedings Euroconference'94", Eds: M.Dahlborg and U.Dahlborg, Physica Scripta T57 1995.
- "Abstracts Book & Programme, LAM12, 12th Internat; Conf. on Liquid and Amorphous Metals" 2004, Ecole des Mines de Nancy, France. Ed: M.Calvo-Dahlborg.
- Site "LAM12-Publication, LAM12, 12th Internat; Conf. on Liquid and Amorphous Metals." 2003-2004. <http://www.mines.inpl-nancy.fr/~>, Ecole des Mines de Nancy, France. Webmaster: M.Calvo-Dahlborg.
- "Proceedings of LAM12, 12th Internat. Conf. on Liquid and Amorphous Metals" 2007, Elsevier, Ed: J.H.Simmons, B.G.Potter. Guest Ed. M.Calvo-Dahlborg.

Main stays abroad:

- Germany: Institut für Werkstoffkunde und Werkstofftechnik, Clausthal- Zellerfeld (18 months, 1982-85); Institut für Massivbau und Baustofftechnologie, Leipzig (2 weeks 2000); Institut für Mikro- und Nanomaterialien, Ulm (2 weeks 2014).
- Israel: Advanced Metals Technologies Ltd (AMT) (10 weeks 1995-1998).
- Russia: Institute of Solid State Physics, Chernogolovka (15 weeks 1992, 1996-1999); Ural Polytechnical Institute, Ekaterinburg, ex-Sverdlovsk (5 weeks 1997, 2009, 2017).
- Sweden: Royal Institute of Technology, Institute of Physics, Stockholm and Studsvik Neutron Research Laboratory (4 years 9 months 1990-2000).
- UK: Rutherford Appleton Laboratory, Oxford (16 weeks 1991-1999); Swansea University (15 weeks 2014-2019).
- Ukraine: B. Verkin Institute for Low Temperature Physics and Engineering, Kharkov (3 weeks 1998).
- USA: Ames Laboratory, Ames, Iowa. Oak Ridge National Laboratory, Argonne National Laboratory, APS and IPNS (16 weeks, 2003-2005).

Foreign languages: English: Fluent, trilingual family environment (some French, English, some Swedish) and bilingual child (French, English C2). German, Russian: Were at good level, need of practice. Swedish: Average. Chinese: some knowledge.

Publications:

- 41 in international journals with reviewing procedure
- 39 in conference proceedings with reviewing procedure.
- 25 invited communications and seminars in international (10 in France) conferences or laboratories.
- 53 communications in international (18 in national) conferences.
- 1 chapter of a book.

6. Main publications (max. 6):

1) **Hume-Rothery for HEA classification and self-organizing map for phases and properties prediction.** M.Calvo-Dahlborg, S.G.R. Brown, *J. Alloys and Compounds* 724 (2017) 353-364.

<http://dx.doi.org/10.1016/j.jallcom.2017.07.074>

2) **Interplay of electronic, structural and magnetic properties as driving feature of high entropy CoCrFeNiPd alloys.** M.Calvo-Dahlborg, J.Cornide, J.Tobola, D.Nguyen-Manh, J.S.Wróbel, J.Juraszek, S.Jouen, U.Dahlborg. *J. Phys. D: Applied Physics* 50 (2017) 185002 (12pp).

<https://doi.org/10.1088/1361-6463/aa62ea>

3) **Structure of some CoCrFeNi and CoCrFeNiPd_x multicomponent HEA alloys by diffraction techniques.** U.Dahlborg, J.Cornide, M.Calvo-Dahlborg, T.Hansen, A.Fitch, Z.Leong, S.Chambreland, R.Goodall. *J. Alloys Compounds* 681 (2016) 330-341. <http://dx.doi.org/10.1016/j.jallcom.2016.04.248>

4) **Superheat-dependent microstructure of molten Al-Si alloys of different compositions studied by small angle neutron scattering.** M.Calvo-Dahlborg, P.S.Popel, M.J.Kramer, M.Besser, J.R.Morris, U. Dahlborg. *J. Alloys Compounds* 550 (2013) 9–22.

<http://dx.doi.org/10.1016/j.jallcom.2012.09.086>

5) **Identification of phases in gas-atomised droplets by combination of neutron and X-ray diffraction techniques with atom probe tomography.** M.Calvo-Dahlborg, S.Chambreland, C.M.Bao, X.Quelennec, E.Cadel, F.Cuvilly, U.Dahlborg. *Ultramicroscopy* 109 (2009) 672-676.

<http://dx.doi.org/10.1016/j.ultramic.2008.10.028>

6) **Chapter 8. Thermal melt processing of metallic alloys.** U.Dahlborg, M.Calvo-Dahlborg, D.Eskin, P.S.Popel. *Solidification Processing of Metallic Alloys Under External Fields*, Ed. J.Mi and D.G.Eskin, 2018, Springer International Publishing. ISBN 978-3-319-94842-3.

<https://www.springer.com/us/book/9783319948416>