

Gael OBEIN - english version



Associate Professor
PhD in « Metrology and Physical Systems »

Leadership

Lab level

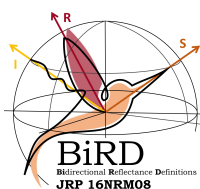
Director of LNE-CNAM, French designated institute for Length, Temperature, Radiometry and Photometry
Head of Radiometry/Photometry Team
Head of « Photometry/Spectrophotometer » calibration service

National level

President of Association Française de l'Éclairage ([AFE](#))
National delegate at CIE division 2 (measurement of light)
Contact person for key comparisons at CCPR and Euramet-TC-PR level
Member of supervisory board of GDR CNRS 2044 [APPAMAT](#)

International level

Division secretary [CIE Div2](#)
Co -chair of CIE Joint Technical Committee [JTC17](#)(D1/D2/D8)
Member of 4 CIE Technical committee ([TC2-81](#), [TC2-77](#), [JTC12](#))
Coordinator of key comparison EURAMET-PR-K6 (regular transmittance, 18 participants)
Coordinator of EU funded research projects :



"xDReflect", JRP IND52 – Multidimensional Reflectometry for Industry

UE funded project in the frame of EMRP program, 36 month, 10 partners, 2.9 M€

Project objectives were:

- Improvement of primary metrology in the field of goniospectrophotometry (BRDF measurement)
- Proposal of new solutions for the characterization of goniochromatism, gloss, sparkle and fluorescence
- Proposal of new transfer artefacts for these 4 visual attributes.

"BiRD", JRP 16NRM08 – Bidirectional Reflectance Definitions

UE funded project in the frame of EMPIR, 36 months, 11 partners, 536 k€.

Project objectives are:

- Initiate a normative work on how BRDF measurements have to be done in order to properly characterize goniochromatism, gloss and sparkle
- Propose a universal data arrangement of BRDF measurement files.

"BxDiff ", JRP 19SIB03 – New quantities for the measurement of appearance

UE funded project in the frame of EMPIR, 36 months, 17 partners, 1,6 M€.

Project objectives are :

- To address last issues about BRDF measurements (polarization, speckle, measurements on tiny objects)
- To develop and compare NMI's metrological scales for BTDF
- To develop primary facilities for BSSRDF measurements
- To develop, select or promote a new generation of standard artefacts to transfer the scales to industry.

Activité de recherche

"Mise en pratique" of photometry and spectrophotometry primary references

- Improvement of facilities in order to reduce measurement uncertainties and keep the French metrology at the highest level for photometry and spectrophotometry.
- Coordinator and/or participant in key comparison at CCPR level and Euramet-PR level.

« Metrology of appearance »

- Development and validation of the primary scale for the measurement of the Bidirectional Reflectance Distribution Function (BRDF) by design, implementation and characterization of a goniospectrophotometer
- Development of a facility allowing the measurement of the BRDF of glossy surfaces, with an angular resolution of 0.015° (better than the human visual system)
- Development of facilities devoted to the measurement of μ BRDF (illuminated surface of 50 μ m diameter) and devoted to BSSRDF measurement.

Employment/background

since 2006 Associate professor at the Conservatoire National des Arts et Métiers, Paris.
2005 – 2006 Post-doc at the Conservatoire National des Arts et Métiers, Paris., Paris.
2004 – 2005 Post-doc at National Institute of Standards and Technology (NIST), USA
2002 – 2004 Assistant Professor at University Pierre and Mairé Curie (Paris VI).
1999 – 2003 PhD student at Muséum National d'Histoire Naturelle, under the advisory of Prof. F. Viénot
1998 – 1999 MSC in Metrology, Laser and Telecommunication at University Paris 13
1997 – 1998 Military duty
1995 – 1997 BSC in Physics

Publications

Gozhyk I., Turbil C., Garcia E., **Obein G.**, 2023, "Impact of light polarization on angle-resolved light scattering from gloss scale" *Physica Scripta* **98(9)**
Khlevnoy B., Solodilov S., Kolesnikova S., Otryaskin D., Pons A., Campos J., Shin D., Park S., **Obein G.**, Valin M., Vissière A., Dai C., Wu Z., Wang Y., Li L., Lin Y., Yoon H., Gibson G., Liu Y., Manson P., Atkinson E., Zama T., Shitomi H., Goodman T., Servantes W., Gamouras A., Woods W., Sperfeld P., Pape S., 2023, "CIPM key comparison CCPR-K1.a.2017 for spectral irradiance 250 nm to 2500 nm. Final report ", *Metrologia*, **60(1A)**
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Ansari-Asl M., Barbieri M., **Obein G.**, Hardeberg J., 2023, "Advancing Material Appearance Measurement: A Cost-effective Multispectral Imaging System for Capturing SVBRDF and BTF", London Imaging Meeting, 2023, pp 104-108
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Valin M. H., **Obein G.**, Rougie B., Valin T., Truong D., Vissiere A., Bourson, 2022, "New traceability chain for spectral irradiance measurement at LNE-Cnam", *Measurement Science and Technology*, **33(6)**
Chavel P., Sortais Y., Labardens T., Simonot L., Hébert M., **Obein G.**, 2022, "Advocating a statistical definition for the BRDF", *Journal of Physics: Conference Series*, 2149(2022)
Valin M. H., **Obein G.**, 2021, "A new method for measuring the spectral irradiance at LNE-CNAM", Proceedings of the 20th International Congress of Metrology (CIM 2021), 7-9 September 2021, Lyon, France
Obein G., 2021, "The measurement of appearance", *Proceedings of the International School of Physics "Enrico Fermi"*, Vol **206** : New Frontiers for Metrology: From Biology and Chemistry to Quantum and Data Science, IOP Press, pp 175 - 186
Valin M. H., Rougié B., Vissiere A., **Obein G.**, Valin T., 2021, "New spectral irradiance traceability scale at LNE-CNAM", Proceedings of NewRad 2021
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 Labardens T., Chavel P., Sortain Y., Hébert M., Simonot L., **Obein G.**, 2021, "Study and simulations of speckle effects on BRDF measurements at very high angular resolution", *Proceedings of the IS&T Electronic Imaging Symposium, Material Appearance 2021*, Jan 2020, ([link](#))
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 Rabal A., Ged G., Richard A., **Obein G.**, 2020, "Effect of the size and shape of the measurement area on BRDF measurements on glossy samples", *Proceedings of the International Colour Association (AIC) Conference 2020*, Avignon, Nov 2020, pp 384-388 ([link](#))
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