



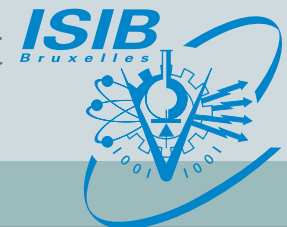
Research in ISIB

14TH OF MAY 2013

Organization of research in ISIB



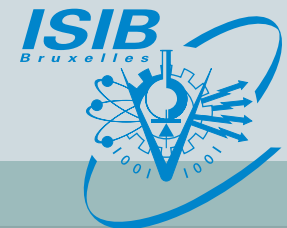
- IRFO (Institut de Recherche et Formation) of the HEPHS:
 - Association of teaching people involved in research projects
 - Divided in 3 axes:
 - ✦ Paramedical
 - ✦ Technical = ISIB
 - ✦ Human sciences
- IRISIB:
 - Asbl linked to ISIB
 - Allows the management of funds for the projects
 - Divided in departments related to the field of interest



Types of projects



- Funded by ISIB resources
- Funded by an administrative organization (Walloon or Brussels Region)
- Funded by industrial or commercial contracts



On personal resources



- Inter-comparison of deconvolution techniques applied to measurement in radioactivity environmental survey (collaboration with IRE and ULB)
- XRF in vivo study of iodine concentration in thyroid gland (collaboration with Erasme hospital)
- Mechanical behaviour of irradiated concrete (collaboration with Artesis Antwerpen)
- Computed tool for dynamic reliability of industrial process



Projects funded by official organizations



- **Walloon Region:**
 - First
 - First international
 - “chèque technologique”
 - WB Green
- **Brussels Region**
 - Spin off



First & Co



- Possibility of hiring a person.
- Collaboration with an industry.
- Related to new development of high technology.
- Possibility of buying high-tech devices.
- Example running now:
 - FREDONE (Dosimetry of high energy neutron)
 - ESTRADES (improvement of plastic scintillator performances)
 - SAMIFIS (Intelligent multi-criteria system to detect SPAM)
 - COLIBRI (Development of multimodal interactive panel)



Funded by industrial- commercial contract



- Development of map of radon concentrations in homes in the walloon region; collaboration with AFCN.
- Use of activated nanoparticles as a tracer for an additive to diesel fuel; collaboration with Rhodia (2005)

Importance of research for teaching



- Development and improvement of “fields of excellence” related to the field of research.
- Proposal to students of master thesis subjects, internships...with strong connection with “real life” challenges.
- Acquisition of devices available for the practical part of the cursus.
- Realization of PhD thesis in-house with connection with other academic partners; 2 thesis finalized (in 2011 and 2012); one running now.



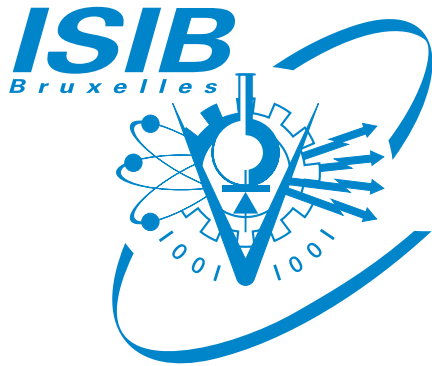
Publications list of last 3 years



- 16 different publications
- 8 different journals
- 3 PhD thesis
- Strong orientation for international collaborations

- B.Craeye, G. De Schutter, I. Gerardy ; Effect of gamma radiation and elevated temperatures on the strength of cementitious barriers for radwaste disposal, Journal of the Chinese Ceramics Society (40(1)),2012 doi11.2310/tq.20111229.1907.006 ISSN 0454-5648 p.33-38
- B. Craeye, G. De Schutter, M. De Raemaeker, K. Gevers, I. Gérardy ; Effect of gamma irradiation and heat on properties of hardening self-compacting mortar Proceedings of the 12th International Conference on Recent Advances in Concrete Technology, Prague, Czech Republic, October 2012 Edited by Pa. Gupta and Pr. Gupta ISBN 978-0-9916737-1-1 Supplementary paper p. 323-336
- B. Craeye, M. De Raemaeker, G. De Schutter, I. Gérardy, K. Gevers; The effect of gamma irradiation on hardening self-compacting mortar in the Belgian supercontainer concept for high level radioactive waste disposal .Proceedings of the 2nd International Conference on MicroDurability, Amsterdam, The Netherlands, April 2012 I-ISBN 978-2-35158-129-2 e-ISBN 978-2-35158-123-0 paper 106
- Jonathan Bare, Jorge E. Fernandez, Viviana Scot, François Tondeur, Sergio Gallardo, José Ródenas and Pier Luca Rossi; Reconstruction of an X-ray tube spectrum from a scattering measurement, Applied Radiation and Isotopes, 70(7):1238 – 1242, 2012.
- F. Tondeur, G. Cinelli; A software for indoor radon risk mapping based on geology, 11th Int. Workshop on Geological Aspects of Radon Risk Mapping Czech Geological Survey and Radon vos, Prague, Sep. 2012
- G. Cinelli, F. Tondeur, B. Dehandschutter, Development of an indoor radon risk map of the Walloon region of Belgium, integrating geological information, Environmental Earth Science, 2011,62,809-819
- F. Tondeur, J. Rodenas, A. Querol, J. Ortiz, B. Juste, Indoor radon measurements in the city of Valencia , Applied Radiation and Isotopes, vol.69, 8 (2011) 1131-1133
- Gerardy I., Ródenas J., Gallardo S., Uncertainty analysis in MCNP5 calculations for brachytherapy treatment, Applied Radiation and Isotopes, vol. 69, 8, (2011) 1108-1111
- J. Baré, F. Tondeur, Gamma spectrum unfolding for a NaI monitor of radioactivity in aquatic systems: experimental evaluations of the Minimal Detectable Activity, Applied Radiation and Isotopes, 69 (2011), 1121 – 1124.
- Fernandez J., Scot V. Baré J., Tondeur F., Gallardo S., Rodenas J., Rossi P.-L., Reconstruction of the X-ray tube spectrum from a scattering measurement, Applied Radiation and Isotopes, <http://dx.doi.org/10.1016/j.apradiso.2011.11.035>
- L. Marwaha, F. Tondeur, Response Function of the CdZnTe SPEAR Detector, X-ray Spectrometry, **Vol. 40, 6, (2011)** 417–419
- L. Hocks , « L'hydrogène : vecteur énergétique de demain », Ing,14, 20-23, (2010)
- G. Cinelli, F. Tondeur, B. Dehandschutter, Development of an indoor radon risk map of the Walloon region of Belgium, integrating geological information, Environmental Earth Science, 2011,62,809-819
- G. Cinelli, F. Tondeur , Log-normality of indoor radon data : pragmatic approach, Int. Workshop on Geological Aspects of Radon Risk Mapping, Czech Geological Survey, Prague, 2010 , p 72 , ISBN 978-80-7075-744-3
- I Gerardy J. Ródenas , M. van Dycke , S. Gallardo , Elisa Ceccolini, Dosimetric characterization of a brachytherapy applicator using MCNP5 modelisation and in-phantom measurement, Applied Radiation and Isotopes 68 (2010) 735-737.
- J. Baré et al.,Gamma spectrum unfolding for a NaI monitor of radioactivity in aquatic systems, Applied Radiation and Isotopes 68 (2010) 836 - 838





Thank you for your attention