

KAREN SCRIVENER

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BIOGRAPHIE

De nationalité anglaise, Karen Scrivener est née en 1958. Au cours de sa carrière, ses travaux et sa recherche traitaient des domaines suivants : Identification du développement microstructurale pendant l'hydratation du ciment. Elaboration d'une approche multitechnique pour étudier la microstructure des ciments et bétons, avec accent sur la quantification par analyse des images d'électrons rétrodiffusés. Caractérisation de l'auréole de transition de la pâte de ciment autour des granulats. Compréhension des processus de dégradation des bétons, en particulier le gonflement lié à la formation de l'ététringite retardée dans les bétons étuvés.

MAIN PUBLICATIONS

- * Studying nucleation and growth kinetics of alite hydration using Uic, Bishnoi S., Scrivener, K.L., Cement and Concrete Research, 39, 0, 2009,
- * UIC : A new platform for modelling the hydration of cements, Shashank Bishnoi, Karen L. Scrivener, Cement and Concrete Research, Volume 39, Issue 4, April 2009, Pages 266-274
- * Innovation in use and research on cementitious material, Karen L. Scrivener, R. James Kirkpatrick (University Illinois, USA), Cem. Concr. Res. (2007), doi:10.1016/j.cemconres.2007.09.025
- * Backscattered electron imaging of cementitious microstructures : understanding and quantification , Scrivener KL, CEMENT & CONCRETE COMPOSITES 26 (8) : 935-945 NOV 2004
- * The interfacial transition zone (ITZ) between cement paste and aggregate in concrete , Scrivener KL, Crumie AK, Laugesen P, INTERFACE SCIENCE 12 (4) : 411-421 OCT 2004
- * Influence of limestone on the hydration of Portland cements , Lothenbach, B; Le Saout, G; Gallucci, E; Scrivener, K , Cement and Concrete Research 38 (6) :848-860
- * A thermodynamic and experimental study of the conditions of thaumasite formation, Schmidt, T; Lothenbach, B; Romer, M; Scrivener, K; Rentsch, D; Figi, R, Cement and Concrete Research 38 (3) :337-349
- * Relation of expansion due to alkali silica reaction to the degree of reaction measured by SEM image analysis , Ben Haha M, Gallucci E, Guidoum A, Scrivener KL., CEMENT AND CONCRETE RESEARCH 37 (8) : 1206-1214 AUG 2007
- * What causes differences of C-S-H gel grey levels in backscattered electron images ?, Famy, C., K. L. Scrivener, et al. , Cement and Concrete Research 32(9) : 1465-1471., 2002
- * Si-29 and Al-27 NMR study of alkali-activated slag., Wang, S. D. and K. L. Scrivener , Cement and Concrete Research 33(5) : 769-774., 2003

LABORATORY OF CONSTRUCTION MATERIALS (LMC)

The Laboratory of Construction Materials provides research and teaching facilities, and carries out testing and construction work related to its competence. The Laboratory of Construction Materials is a competence centre for all construction materials. A highly qualified team of scientific collaborators and doctoral students under the lead of professor Karen Scrivener are doing intensive research to further improve the world's most used material - concrete. Our laboratory is also teaching students the bases of concrete and wood technology in the bachelor cycle and organizes lectures and projects, including master thesis, for further specialisation in the master cycle. Our atelier is performing tests on demand for partners from the industry.

Research activities at the Laboratory of Construction Materials (LMC) are focused on cementitious materials and on the micro-mechanics and processing of wood. The complexity and heterogeneity of cementitious materials make difficult the establishment of microstructure-property relationships. Within the LMC, quantitative microstructural characterisation and microstructural modelling provide a unique capability to study, understand and improve cementitious materials and their applications, ranging from mixing and placing to long-term performance (durability).

COMPETENCE CENTRE FOR MATERIALS SCIENCE AND TECHNOLOGY (CCMX)

The Competence Centre for Materials Science and Technology (CCMX) is one of several centres of excellence initiated at the national level by the ETH Board in early 2006. It aims to serve the interests of Switzerland in the field of materials science in terms of research, education and technology transfer by reinforcing ties between academia, industry and the Swiss economy.

Structure :
CCMX federates the strengths of four ETH Domain institutions (EPFL, ETHZ, EMPA, PSI) and of CSEM, and involves the active participation of partners from industry, from industrial associations and from Swiss universities. The Centre is headed by a Steering Committee comprising members from EPFL (chair), ETHZ, PSI, Empa, CSEM and industry.

Research :
The Centre funds projects involving industrial partners and research institutions. CCMX concentrates on pre-competitive research and thus aims to strongly and positively influence this area in Switzerland. Each CCMX funded project includes at least two institutions and very often one or more industrial partners. This multi-partner project approach brings together the best competencies from all over Switzerland in specific materials science related domains.

Conclusion :
CCMX aims to strongly and positively influence materials science in Switzerland by building a Swiss reservoir of expertise in the field of materials science. It builds bridges between the scientific and industrial communities and addresses targeted specific needs with particular emphasis on developments of interest for the applications of tomorrow.