

Monday 28 May 2001

13.00-14.00	Registration	Amphi Marie Curie (the room in front of the Amphitheatre)
14.00-14.30	Opening Ceremony	Amphi Marie Curie
14.30-15.05	Keynote D chairman: J. Mazars Computational fracture analysis on concrete gravity dams toward engineering evaluation of seismic safety, H. Horii, S-C Chen	Amphi Marie Curie
15.05-15.35	Break	Hall d'Alembert

	Session B	Session D	Session E
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: F.H. Wittmann	Chairman: H. Mang	Chairman: H. Mihashi
15.35-15.55	Beyond the crack size criterion: the effect of a fracture on calcium depletion of cementitious materials F.H. Heukamp, F.-J. Ulm	A new methodology for the discrete analysis of concrete fracture under impact loading G.N. Wells, L.J. Sluys	Simulation strategies for RC buildings under seismic loading T.S. Han, S.L. Billington, A.R. Ingraffea
15.55-16.15	Numerical analysis of moisture flow and concrete cracking by means of lattice type models D. Jankovic, M. Kuntz, J.G.M. van Mier	Proces zone resolution by extended finite elements M. Jirasek, B. Patzak, S. Rolshoven	Validation of nonlinear constitutive laws used for the seismic evaluation of existing industrial facilities D. Combescure, P. Sollogoub
16.15-16.35	Mechanical analysis of concrete structures subjected to an aggressive water attack C. le Bellego, B. Gerard, G. Pijaudier-Cabot	Method of incompatible modes in capturing strong discontinuities induced by strain-softening D. Brancherie, A. Ibrahimbegovic	A study on R/C tension members under repeated load A.P. Fantilli, P. Vallini
16.35-16.55	The time scale in concrete fracture: a model based on partitions of unity G.P.A.G.van Zijl, G.N. Wells	Meso-sopic concrete analysis with a lattice model A. Asai, K. Terada, K. Ikeda	The crack behavior at the downstream face of the concrete gravity dam caused by wintertime air temperature variation H.S. Jang, J.S. Shim, C.S. Jin, H.S. Kim
16.55-17.15	On the modeling of thermo-mechanical concrete for the finite element analysis of structures submitted to elevated temperatures W. Nechnech, J.M. Reynouard, F. Meftah,	An elastoplastic-damage model for quasi brittle materials in the framework of the strong discontinuity approach J. Mosler, G. Meschke	Fracture of fibre reinforced concrete slabs on grade A. Meda, G.A. Plizzari, V. Slowik
17.15-17.35	Mathematical models for degree of hydration and moisture distribution in concrete at early age B.H. Oh, S.W. Cha	Strong embedded discontinuities for simulating fracture in quasi-brittle materials J. Alfaiate, G.N. Wells, L.J. Sluys	Structural and local behavior of reinforced high strength concrete structures subjected to high temperatures G. Ranc, J. Sercombe, S. Rodrigues, C. Gatabin
17.35-17.55	Finite element simulation of chemo-mechanical damage under cyclic loading conditions F. Bangert, D. Kuhl, G. Meschke	Statistical nonlinear analysis - size effect of concrete beams D. Novak, M. Vorechovsky, R. Pukl, V. Cervenka	The tower leg's anchoring capacity embedded in a concrete column surrounded by steel pipe subjected to uplift load S. Saito, S. Komiyama, S. Tanabe, M. Matsushima

18.00-20.00 **Cocktail party** Hall d'Alembert

Tuesday, 29 May 2001

08.45-09.20 Keynote E chairman: K. Rokugo
Cracking in shotcrete shells, H. Mang

Amphi Marie Curie

09.20-09.40 **Break**

Hall d'Alembert

	Session B	Session C2	Session E
	room: 131	room: Fonteneau	room: Concordet
	Chairman: H.S. Müller	Chairman: A. Ingrassia	Chairman: J.G.M. van Mier
09.40-10.00	Modelling thermo-hygro-mechanical behaviour of high performance concrete in high temperature environments D. Gawin, C.E. Majorana, F. Pesavento, B.A. Schrefler	Estimation of fracture energy from basic characteristics of concrete Z.P. Bazant, E. Becq-Giraudon	A predictive model for the peeling failure of plated reinforced concrete beams O.J. Gastebled, I.M. May
10.00-10.20	Numerical modeling of environmentally induced deterioration of concrete S. Grasberger, F. Bangert, D. Kuhl, G. Meschke	Self-induced lateral X-tension in concrete under compression and constitutive equations of its integrity I. Blechman,	Thermo-mechanical behaviour and leak-rate prediction of a pre-stressed containment in case of an accident F. Cany, A. Millard
10.20-10.40	Consequences of desiccation on mechanical damage of concrete F.H. Hubert, N. Burlion, J.F. Shao	Effect of friction on energy release for interfacial cracks in gravity dams J.M. Chandra Kishen, R. Felicetti, F. Iorio, R. Gettu	Slot cutting response of compressed concrete structures P. Caron, R. Tinawi, P. Leger, M. Veilleux
10.40-11.00	Modelling bond between corroded reinforcement and concrete K. Lundgren	Importance of multiple damage model for analysis of RC structures S. Gupta,	HPFRC pre-stressed thin-web elements: some results on shear resistance M. di Prisco, L. Ferrara
11.00-11.20	An isotropic damage model for non linear creep behavior of concrete in compression C. Mazzotti, M. Savoia, A. Tralli	A comparison in tension softening curves obtained by a uniaxial tension test and a 3-point bending test with an inverse analysis H. Koide, H. Akita, D. Sohn, M. Tomon	Behaviour and design of reinforced concrete beams with large openings S. Ehmann, M. Schnellenbach-Held
11.20-11.40	Experimental and numerical study on the effect of sulfates on calcium leaching of cement paste D. Planel, J. Sercombe, P. le Bescop, F. Adenor, A. Sellier, B. Capra, J.M. Torrenti	Stress-strain relation of confined concrete under dynamic loading S. Kono, F. Watanabe, A. Kajitani	Behavior and design of fastenings with headed anchors at the edge under tension and shear load J. Hofman, R. Eligehausen, J. Ozbolt
11.40-12.00	A basic creep model for concrete subjected to multiaxial loads F. Benboudjema, F. Meftah, A. Sellier, G. Heinfling, J.M. Torrenti	Effects of diffuse cracking around a main cohesive crack in diagonal splitting tests I. Arbilla, J. Planas, G.V. Guinea, M. Elices	Effect of constitutive model parameters for FRC beams in different shear-span ratios Y. Kaneko, H. Mihashi, N. Itagaki, S. Ishiyama

12.20-13.50 **Lunch**

Tuesday, 29 May 2001 (cont'd)

14.10-14.45 Keynote B chairman V.C. Li
Durability mechanics of calcium leaching of concrete and beyond, F.-J. Ulm, F.H. Heukamp, J.T. Germaine Amphi Marie Curie

	Session B	Session D	Session C2
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: J.M. Reynouard	Chairman: A. Ibrahimbegovic	Chairman: R. Gettu
14.50-15.10	Structural concrete behavior: coupled effect of drying and loading L. Molez, Y. Berthaud, D. Beaupre, B. Bissonnette	Sequentially linear continuum model for concrete fracture J.G. Rots	A two-surface anisotropic damage/plasticity model for plain concrete E. Hansen, K. Willam, I. Carol
15.1015.30	Cracking of a saturated hydrated cement system exposed to frost action - numerical modeling B. Zuber, J. Marchand, G. Pijaudier-Cabot	A novel technique for modelling interfaces in reinforced brittle materials A. Simone, G.N. Wells, L.J. Sluys	Concrete splitting and bond in prestressed concrete beams with indented wires J.C. Galvez Ruiz, B. Tork, D.A. Cendon, J. Planas
15.30-15.50	Mechanical modelling of Alkali-aggregate reaction in concrete structures B. Capra, A. Sellier	Equivalent localisation element for crack band model and as alternative to elements with embedded discontinuities Z.P. Bazant, J. Cervenka, M. Ierer	Fatigue behaviour of concrete in tension C. Kessler-Kramer, V. Mechtcherine, H.S. Müller
15.50-16.10	Plasticity and damage and fracture mechanics models for concrete affected by alkali-aggregate reaction X.H. Wen	Interfacial debonding mechanism of FRP-strengthened concrete structures with BEM T.Z. Chen, Z.S. Wu, Z.Z. Cen	Nonlinear interfacial softening for concrete beams retrofitted with composite plate C.K.Y. Leung, M. Klenke, W.K. Tung, H.C.Y. Luk

16.10-16.40 **Break**

	Session B	Session D	Session E
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: F.-J. Ulm	Chairman: N. Bićanić	Chairman: Z.P. Bazant
16.40-17.00	Time-dependent fracture of concrete using fractional order rate laws F. Barpi, S. Valente	Rigid-body-spring network modeling of cement-based composites J. Bolander, M. Yip, K. Moriizumi, M. Kunieda	The equivalent reinforced concrete model for simulating the behavior of shear walls under dynamic loading P. Kotronis, J. Mazars, L. Davenne
17.00-17.20	Drying creep : an elasto-plastic damage approach of the structural effect F. Benboudjema, F. Meftah, J.M. Torrenti	Numerical modelling of the fracture behaviour of limestone K. de Proft, W.P. de Wilde, M.G.A. Tijssens, L.J. Sluys,	Localization concepts applied to the analysis of reinforced concrete deep beams T. Lertsrisakulrat, T. Miki, M. Matsuo, J. Niwa
17.20-17.40	Development of fracture characteristics of cement pastes and causes of microcracking V. Bilek, T. Mosler, Z. Kersner, P. Schmid	Modelling of crack propagation in large structures with a two scales approach K. Haidar, J.F. Dube, G. Pijaudier-Cabot	Fracture analysis of quadruple fastenings with bonded anchors Y.-J. Li, R. Eligehausen, B. Lehr, J. Ozbolt
17.40-18.00		Microstructural modeling of concrete behavior using fracture and diffusion-based interface elements C.M. Lopez, J. Murcia, X. Mestre, I Carol	Splitting crack propagation in pullout tests P.C. Lura, G.A. Plizzari, P. Riva

19.30-23.00 **Cruise on the Seine**

Wednesday, 30 May 2001

08.45-09.20 keynote C3 chairman: F.H. Wittmann

Size effect in hardened cement paste and high strength concrete, B.L. Karihaloo, H.M. Abdalla Amphi Marie Curie

09.20-09.40 **Break**

Hall d'Alembert

	Session A	Session C3	Session E
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: G. Pijaudier-Cabot	Chairman: B. Karihaloo	Chairman: J.G. Rots
09.40-10.00	Uniaxial tensile test and fractal evaluation of softening damage in concrete A. Carpinteri, S. Invernizzi	Size effects in quasibrittle fracture: apercu of recent results Z.P. Bazant	Three-dimensional modeling of anchoring systems in concrete J. Nienstedt, R. Mattner
10.00-10.20	Fracture modeling with a microstructural mechanics approach S. Chang, T.K. Wang, L.J. Sluys, J.G.M. van Mier	Friction and specimen slenderness influences on dissipated energy density of quasi-brittle materials in compression: an explanation based on fragmentation theory A. Carpinteri, N. Pugno	Crack development in FRC beams subject to bending and axial load J.F. Olesen
10.20-10.40	Length scales of fiber reinforced cementitious composites - review E. Chuang, M. Overland, F.-J. Ulm	Using numerical simulations to determine the accuracy of the size effect and two-parameter data reduction methods for fracture toughness tests of concrete J.H.M. Hanson, A.R. Ingraffea	Propagation of initial crack in concrete gravity dam S.J. Peng, H. Shiojiri, M. Irobe
10.40-11.00	Boundary effect on concrete fracture influenced by non-constant fracture energy distribution K. Duan, X.Z.Hu, F.H. Wittmann	On the size-effect phenomenon in concrete structures M.D. Kotsovos, M.N. Pavlovic	Minimum steel in concrete beams: an assessment based on discrete crack model M.V.K.V. Prasad
11.00-11.20	Fracture mechanics of fibre-reinforced concrete: material modelling and experimental technique O. Bayard, O. Ple, A. Alvandi	Concrete modulus of rupture - analytical description of strength, size-effect and brittleness C.V. Nielsen, N. Bicanic	Mechanical performance of RC and SFRC tunnel lining segments M. Quiertant, J.F. Seignol, F. Toutlemonde
11.20-11.40	Cable loaded uniaxial tensile tests on quasi-brittle material C. Shi, J.G.M. van Mier	Punching failure - influence of the material properties and J. Ozbolt, H. Vocke, R. Eligehausen	Evaluation and improvement of performance of concrete beams against impact loading K. Rokugo, H. Iwase, M. Kunieda, T. Kamada, M. Suzuki, K. Taki, Y. Fujimoto
11.40-12.00	Evaluation of fracture behavior of concrete joints under shear force K. Rokugo, S.-C. Lim, M. Kunieda, T. Kamada, W. Koyanagi	Effect of specimen sizes on flexural compressive strength of concrete J.K. Kim, S.T. Yi, J.H.J. Kim	Simulations on crack distributions on concrete in FRP-strengthened beams with interfacial friction crack model J. Yin, Z. Wu

12.20-13.50 **Lunch**

Wednesday, 30 May 2001

14.10-14.45 Keynote C2 chairman: Z.P. Bazant
Continuous damage models for fracture of concrete, G. Pijaudier-Cabot, R. de Borst, J. Mazars

Amphi Marie Curie

	Session C1	Session C3	Session E
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: K. Rokugo	Chairman: V. Saouma	Chairman: A. Carpinteri
14.50-15.10	Experimental investigation of fracture processes in concrete cylinders subjected to torsion G. Lilliu, J.G.M. van Mier	Nonlocal Weibull theory and size effect in failures at fracture initiation Z.P. Bazant, D. Novak	A 2D-3D simplified modelling strategy to simulate the non linear behaviour of U-shaped walls P. Kotronis, J. Mazars, L. Davenne
15.10-15.30	Test methods for determining tension softening diagram for concrete H. Mihashi, Y. Kaneko, K. Kirikoshi, K. Otsuka, H. Akita	Size effect in steel-concrete bond: test results and modelling for smooth bars D. Coronelli, P.G. Gambarova, P. Ravazzani	Cracking of R/C tensile members reinforced by FRP-plates D. Ferretti, M. Savoia
15.30-15.50	Fracture behaviour of cementitious interfaces in mode I, II and III C.H. Surberg, E.K. Tschegg	Size-effect in splitting tests on plain and steel fibre-reinforced concrete: a non-local damage analysis L. Ferrara, R. Gettu	Fatigue analysis of fiber reinforced concrete overlaid/underlaid beams T. Matsumoto
15.50-16.10	Fracture energy of high performance concrete at temperatures up to 450 °C B. Zhang, N. Bicanic	Size effect analysis of reinforced concrete deep beams T. Hasegawa	Cyclic and seismic nonlinear modelling of concrete structures using damage model and multilayered beam elements F. Legeron, P. Paultre, J. Mazars
16.10-16.30	Mixed mode fracture of double-edge notched specimens of concrete J.C. Galvez, D.A. Cendon, M. Elices,	Scale effects on the fracture of high-strength concrete P.C. Perdikaris	Retrofitting of RC beams with CARDIFRC F.J. Alaei, S.D.P. Benson, B.L. Karihaloo
16.30-16.50	Fracture mechanics approach to nondestructive evaluation of crack depth in concrete by ultrasonic method T. Kamada, K. Wakatsuki, M Asano, M. Kunieda, K. Roguro		

17.00-17.30 **Break** and **LMT visit** Hall d'Alembert & LMT

17.30-20.00 **RILEM Meetings** to be specified

Thursday, 31 May 2001

08.30-09.05 Keynote C1 chairman: J.G.M. van Mier
Internal structure and fracture in three dimensions, E.N. Landis

Amphi Marie Curie

09.05-10.00 GA IAFRAMCOS

Amphi Marie Curie

10.00-10.20 Break

Hall d'Alembert

	Session A	Session C1	Session C2
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: H. Horii	Chairman: H. Stang	Chairman: J. Planas
10.20-10.40	Development of ductile cement-based composites for seismic strengthening and retrofit K.E. Kesner, S.L. Billington	Acoustic emission measurements of fracture energy E.N. Landis, L. Baillon	Vertex effect and confinement of fracturing concrete via microplane model M4 Z.P. Bazant, F.C. Caner, J. Cervenka
10.40-11.00	Three-dimensional numerical concrete applied to investigate effective properties of composite materials T. Hoersch, F.H. Wittmann	Behavior of plain concrete subjected to tensile loading at high strain-rate E. Cadoni, C. Albertini, K. Labibes, G. Solomos	Constitutive relations for numerical analysis of stress-deformation behavior of concrete subjected to thermal loads V. Mechtcherine, H.S. Müller
11.00-11.20	Numerical simulation for quasi-brittle interface fracture in cementitious bi-material system Y.M. Lim, M.K. Kim, S.K. Shin, V.C. Li	Softening properties of concrete under biaxial loading S. Ishiguro	Microplane model for concrete with relaxed kinematic constraint J. Ozbolt, Y. Li, I. Kozar
11.20-11.40	Statistical property of internal cracks in concrete S. Saichi, H. Shinohe, H. Mihashi	Fast Fourier one-dimensional analysis of concrete crack surface R. Sato, T. Wada, R. Sato, M.Ueda	Modeling of fatigue crack growth for concrete subjected to mode I crack opening A. Toumi, A. Bascoul, A. Turatsinze
11.40-12.00	Numerical calculation mechanics model considering hydration of concrete K. Tajima, K. Moriizumi, N. Shirai	Shear behavior in fracture process zone of concrete Y. Shinohara	Comperative plastic-damage and fracture simulations of quasibrittle materials under uniaxial impact K.D. Papoulia
12.00-12.20	Fractological investigations on the fracture in concrete V. Mechtcherine, H.S. Mueller	Establishment of uniaxial tensile test procedure for high strength concrete D. Sohn, H.Akita, H. Koide, M. Igarashi	Mixed mode fracture of an higher-order beam model in gradient plasticity M.G. Salomon, J.-M. Reynouard, F. Meftah

12.30-14.00 Lunch

Thursday, 31 May 2001

	Session A	Session C1	Session C2
	room: 131	room: Fonteneau	room: Condorcet
	Chairman: V.C. Li	Chairman: E. Landis	Chairman: K. Willam
14.10-14.30	Numerical investigations on damage in cementitious composites under combined drying shrinkage and mechanical load H. Sadouki, F.H. Wittmann	Gas permeability tests on concrete damaged by drying shrinkage and its anisotropy effect N. Burlion, F. Skoczylas	The bridged crack model for reinforced concrete elements with a nonlinear matrix A. Carpinteri, G. Ferro, G. Ventura
14.30-14.50	Cohesive multiscale 3-D FE model applied to study the dynamic mixed-mode fracture of concrete G. Ruiz, A. Pandolfi, M. Ortiz	Fracture process zone in high-strength concrete: influence of maximum size coarse aggregate G. Appa Rao, B.K. Raghun Prasad	New thermodynamic framework for microplane model I. Carol, M. Jirasek, Z.P. Bazant
14.50-15.10	Design for the mechanical properties of polypropylene discontinuous fiber-reinforced cementitious composites manufactured by extrusion molding H. Takashima, K. Miyagai, T. Hashida, V.C. Li	Fracture properties of concrete in cryogenic conditions C. Rocco, J. Planas, G.V. Guinea, M. Elices	Mechanical anisotropy induced by drying shrinkage: modeling and experiment N. Burlion, F. Bourgeois, J.F. Shao
15.10-15.30	Effect of type and volume fraction of aggregate on fracture properties of concrete H. Tasdemir, B.L. Karihaloo	Flexural failure behavior of concrete beams repaired by crack injection techniques M. Kunieda, T. Kamada, K. Rokugo, T. Kawase	On the identification of FRC tensile constitutive behaviour M. di Prisco, R. Felicetti, F. Iorio, R. Gettu
15.30-15.50	Mesosopic approach for modelling the nonlinear hysteric response of damaged porous media in quasi-static and dynamic loading: effects of pressure and moisture saturation J. Carmeliet, K. van den Abeele	Internal alterations of the structure of concrete due to compressive loading K. Klemt, O. Kroggel, P. Gruebl	On regularized plasticity models for strain-softening materials S. Rolshoven, M. Jirasek
15.50-16.10	Material response fluctuations and correlation with internal lengths A. Delaplace, S. Roux, G. Pijaudier-Cabot	Draft on the JCI standard test method for determining tension softening properties of concrete Y. Kitsutaka, Y. Uchida, H. Mihashi, Y. Kaneko, S. Nakamura, N. Kurihara	Rotating smeared crack and orthotropic damage modeling for concrete A. Sellier, B. Bary, B. Capra

16.10-16.40 **Break**

Hall d'Alembert

16.40-17.15 Keynote A chairman: R. de Borst
Damage of Normal and High Strength Concrete as introduced by shrinkage
F.H. Wittmann

Amphi Marie Curie

17.15-17.45 **Closing**

Amphi Marie Curie

18.00-24.00 **Banquet**

at "Les Vaux de Cernay"

Post-Conference Workshops

Friday, June 1, 2001

08.30-09.00	registration	espace Condorcet
09.00-10.15	sessions	rooms: 131, Fonteneau, Condorcet
10.15-10.45	break	Hall d'Alembert
10.45-12.15	sessions	rooms: 131, Fonteneau, Condorcet
12.30-14.00	lunch	
14.10-16.00	sessions	rooms: 131, Fonteneau, Condorcet
16.00-16.20	break	Hall d'Alembert
16.20-18.00	sessions	rooms: 131, Fonteneau, Condorcet