The 4th International Conference on
CRACK PATHS (CP 2012)
Gaeta (Italy), 19 – 21 September, 2012

WEDNESDAY, 19th September, 2012

07.45-08.45  Registration

08.45-09.00  Opening Ceremony  -  room: Sala Ciborio

09.00-10.00  Plenary Lectures P1  -  room: Sala Ciborio
Chairperson: Ingo SCHEIDER, Geesthacht (Germany)
09.00-09.30  Review of fatigue crack growth under non-proportional loading
             Michael Vormwald, Patrick Zerres  (page 19)
09.30-10.00  Propagation of small cracks under RCF: a challenge to multiaxial
             fatigue criteria
             Stefano Beretta, Stefano Foletti  (page 20)

10.00-10.25  Refreshment (coffee, drinks, etc.)

10.25-12.30  Parallel Sessions A1, B1 and C1  (see next pages)

12.30-14.00  Lunch

14.00-15.45  Parallel Sessions A2, B2 and C2  (see next pages)
15.45-16.15  Refreshment (coffee, drinks, etc.)

16.15-17.40  Parallel Sessions A3, B3 and C3  (see next pages)

17.50  Buses leaving from Villa Irlanda  to other hotels

19.30  Buses from Villa Irlanda and other hotels  to the Restaurant in Formia

20.00-21.00  Welcome Party in Formia  -  Restaurant “Di Punto in Bianco”
21.00-22.15  Folk Group “La Basulata”  -  Formia - Remigio Paone Theatre
PARALLEL SESSION A1 - room: Sala Ciborio
19th September, 2012, time 10.25-12.30
Chairperson: Eugenio GINER, Valencia (Spain)

10.25 Crack initiation direction for in-phase biaxial fatigue loading
V. Chaves, C. Madrigal, C. Valledano, A. Navarro (Invited Paper) page 41

10.50 A procedure for evaluating the crack propagation taking into account the material plastic behaviour
A. Rossetti, P. Zerres, M. Vormwald 72

11.10 Modelling of crack path evolution in round bars under cyclic tension and bending
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11.30 On the calculation of crack paths in 3-dimensional anisotropic solids
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11.50 Crack propagation calculations in aircraft engines by coupled FEM-DBEM approach
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M.R.M. Aliha, M. Mousavi, M.R. Ayatollahi 90

PARALLEL SESSION B1 - room: Sala Ottaviano
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Chairperson: Luis REIS, Lisbon (Portugal)

10.25 A three-dimensional analysis of fatigue crack paths in thin metallic sheets
J.B. Esnault, V. Doquet, P. Massin (Invited Paper) page 27

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11.10 Paths of shear-mode cracks in ferritic and austenitic steel
T. Vojtek, J. Pokluda 102

11.30 Recent developments in textural fractography of fatigue fractures
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A.G. Gavras, D.A. Lados 119

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19th September, 2012, time 10.50-12.30
Chairperson: Alfonso FERNÁNDEZ-CANTELI, Oviedo (Spain)

10.50 Crack paths propagation under Mode II fracture in concrete composites containing fly-ash additive
G.L. Golewski, P. Golewski, T. Sadowski

11.10 Strength degradation analysis of an aging RC girder bridge due to existing cracks
J. Wang, Z. Shi, M. Nakano

11.30 New box-counting method as interpretation of crack paths and mechanical properties of concrete with interface layer
A. Satoh, K. Yamada, T. Homma, S. Ishiyama

11.50 Prediction of post-cracking behaviour in SFRC elements under in-plane stresses
P. Bernardi, R. Cerioni, E. Michelini

12.10 Enriched fracture mechanics from discrete elements method
E. Morice, S. Pommier, A. Delaplace
PARALLEL SESSION A2 - room: Sala Ciborio
19th September, 2012, time 14.00-15.45 - Chairperson: Masanori KIKUCHI, Tokyo (Japan)

14.00  Fatigue critical plane according to variance and cumulative damage methods under multiaxial loading
Z. Marciniak, D. Rozumek, E. Macha  (Invited Paper)  page 37

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14.00  Effect of pre-stressing on the growth direction of surface cracks in ultrafine grained copper
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19th September, 2012, time 14.25-15.45 - Chairperson: Silvio VALENTE, Turin (Italy)

14.25 Direction of the maximum variance of the resolved shear stress and orientation of Stage I crack paths
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Chairperson: Jussi SOLIN, Espoo (Finland)

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Chairperson: Huseyin SEHITOGLU, Urbana (USA)

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Chairperson: Rui BAO, Beijing (China)

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09.00-10.00  Plenary Lectures  P2  -  room: Sala Ciborio
  Chairperson:  Youshi HONG,  Beijing (China)
  09.00-09.30  Near-threshold behavior of mode II and III fatigue cracks in ferritic and austenitic steel  (page 21)
    Jaroslav Pokluda
  09.30-10.00  Small crack propagation in multiaxial notch fatigue  (page 22)
    Keisuke Tanaka

10.00-10.25  Refreshment (coffee, drinks, etc.)

10.25-12.30  Parallel Sessions A4, B4 and C4  (see next pages)

12.30-14.00  Lunch

14.00-15.45  Parallel Sessions  A5, B5 and C5  (see next pages)

15.45-16.15  Refreshment (coffee, drinks, etc.)

16.15-17.40  Parallel Sessions  A6, B6 and C6  (see next pages)

17.50  Buses leaving from Villa Irlanda  to other hotels

19.30  Buses leaving from hotels  to Villa Irlanda

20.00-22.30  Conference Dinner  -  Villa Irlanda
PARALLEL SESSION A4 - room: Sala Ciborio
20th September, 2012, time 10.25-12.30
Chairperson: Guido DHONDT, Munich (Germany)

10.25 Structural health monitoring of wind towers: residual life estimation
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Chairperson: Valery SHLYANNIKOV, Kazan (Russia)

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Chairperson: Jana DOBROVSKÁ, Ostrava (Czech Republic)

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20th September, 2012, time 16.15-17.40
Chairperson: Radomila KONEČNÁ, Žilina (Slovakia)

16.15 Crack initiation and path prediction of float glass with various constrain conditions under thermal loading
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20th September, 2012, time 16.15-17.40
Chairperson: Lubos NÁHLÍK, Brno (Czech Republic)

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20th September, 2012, time 16.40-17.40
Chairperson: Anne-Gaëlle VILLEMIANE, La Verrière (France)

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09.00-10.00  Plenary Lectures P3    - room: Sala Ciborio
Chairperson: Claude BATHIAS, Paris (France)
09.00-09.30  Under cyclic loading, plastic dissipation in heat at the crack tip modifies the stress intensity factor (page 23)
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09.30-10.00  Crazing, crack paths and plastic shielding in fatigue of polycarbonate (page 24)
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10.00-10.25  Refreshment (coffee, drinks, etc.)

10.25-12.30  Parallel Sessions A7, B7 and C7 (see next pages)

12.30-14.00  Lunch

14.00-15.45  Parallel Sessions A8, B8 and C8 (see next pages)

15.45-16.15  Refreshment (coffee, drinks, etc.)

16.15-17.20  Parallel Sessions A9 and B9 (see next pages)

17.30-17.45  Closing Ceremony    - room: Sala Ciborio
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21st September, 2012, time 10.25-12.30
Chairperson: Tashio HATTORI, Gifu (Japan)

10.25 On coupled fracture modes and three-dimensional fracture mechanics
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Chairperson: Kanji YAMADA, Akita (Japan)

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Chairperson: Jean-Baptiste LEBLONDE, Paris (France)

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21st September, 2012, time 14.00-15.45 - Chairperson: Fatah HELLAL, Algiers (Algeria)

14.00 An understanding of crack growth in VHCF from an internal inclusion in high strength steel
C. Wang, A. Nikitin, A. Shanyavskiy, C. Bathias (Invited Paper) page 43

14.25 Characteristics of crack interior initiation and early growth originated from inclusion for Very-High-Cycle Fatigue of high strength steels
Y. Hong, Z. Lei, C. Sun, A. Zhao 124

14.45 Fatigue crack path evaluation on two different micro-structures HC and BCC under multiaxial loading
L. Reis, V. Anes, B. Li, M. Freitas 110

15.05 Some numerical assessments on intergranular crack propagation in polycrystals. Application to γ-TiAl
D. Geoffroy, J. Crépin, E. Héripré, A. Roos 111

15.25 In-situ observation of initiation and propagation of (short) microstructural crack growth using a rotating bending machine
P. Huter, M. Wohlfahrt, C. Oberwinkler 109

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21st September, 2012, time 14.05-15.45 - Chairperson: Maria SPECOVIUS-NEUGEBAUER, Kassel (Germany)

14.05 Hot tensile behaviour and cavitation analysis in as-cast and solutionized Al-5.5Mg-Zn alloys
P. Leo, E. Cerri, S. Spigarelli page 152

14.25 An experimental investigation on crack paths and fatigue behaviour of riveted lap joints in aircraft fuselage
A. Skorupa, M. Skorupa, T. Machniewicz, A. Korbel 130

14.45 Micro cracking of ceramic and carbon and fibres acoustic emission in channel-die compressed Mg-Li and Mg-Al alloys matrix composites
A. Pawelek, S. Kúdela, Z. Ranachowski, A. Piatkowski, S. Kúdela Jr., P. Ranachowski, Z. Jasieński 61

15.05 A novel approach for estimation of crack paths in Fibre Metal Laminates
M. Gupta, R.C. Alderliesten, R. Benedictus 59

15.25 Crack path in unidirectional fibre-reinforced brittle-matrix materials through two computational models
R. Brighenti, Andrea Carpinteri, A. Spagnoli, D. Seorza 50
PARALLEL SESSION A9 - room: Sala Ciborio
21st September, 2012, time 16.15-17.20
Chairperson: Solveig MELIN PETERSSON, Lund (Sweden)

16.15 Observation of fatigue crack propagation mode transition under cyclic torsion using micro-CT imaging with ultra-bright synchrotron radiation
Y. Nakai, D. Shiozawa, T. Murakami, H. Nosho (Invited Paper) page 30

16.40 Fibre optic sensor grids in structural testing
K.-H. Haase

17.00 Crack formation and crack path in CFRP machining
R. Rentsch

PARALLEL SESSION B9 - room: Sala Ottaviano
21st September, 2012, time 16.20-17.20
Chairperson: Małgorzata SKORUPA, Cracow (Poland)

16.20 Size effect in the damage behaviour of short fibre reinforced composites
I. Scheider, T. Xiao, N. Huber, J. Mosler page 134

16.40 Growth and paths of small cracks initiated from inclusions in ultra high cycle fatigue
A. Roiko, J. Solin 143

17.00 Sn and Ti influence in bending cracks path in hot dip galvanizing coatings
V. Di Cocco, F. Iacoviello, S. Natali, L. Zortea 53

17.30-17.45 Closing Ceremony - room: Sala Ciborio