

DYNAMIC FRACTURE OF DUCTILE MATERIALS

DYMAT 23rd Technical Meeting – 12-14 September 2017 – Trondheim, Norway – Place: Scandic Hotel Nidelven

12 September 2017

08:00 - 09:00	REGISTRATION	
09:00 - 12:00	SESSION 1 - CHAIR: M. LANGSETH AND N. BAHOULI	
09:00 - 09:15	WELCOME	
09:15 - 10:00	Keynote speaker O.S. Hopperstad	Modelling and simulation of ductile fracture in metals using strain localization theory
10:00 - 10:20	V. Aune, G. Valsamos, F. Casadei, M. Larcher, M. Langseth, T. Børvik	Use of damage-based mesh adaptivity to predict ductile failure in blast-loaded aluminium plates ¹
10:20 - 10:40	B. McDonald, H. Bornstein, G. Langdon, R. Curry, A. Orifici	Deformation and Rupture of Armour Grade Steel Under Localised Blast Loading ¹
10:40 - 11:00	BREAK	
11:00 - 11:20	S. Ward, C. Braithwaite, A. Jardine	The effects of nanostructure upon the dynamic ductile fracture of high purity copper ¹
11:20 - 11:40	B. Sanborn, B. Song, A. Thompson, B. Reece, S. Attaway	High Strain Rate Tensile Response of A572 and 4140 Steel ¹
11:40 - 12:00	B. Song, B. Sanborn, P. E. Wakeland, M.D. Furnish	Dynamic Characterization and Stress-Strain Symmetry of Vascomax® C250 Maraging Steel in Compression and Tension ¹
12:00 - 15:20	SESSION 2 - CHAIR: T. BØRVIK AND A. BENALLAL	
12:00 - 12:20	BREAK	
12:20 - 12:40	A. Janin, A. Constantinescu, D. Weisz-Patrault, R. Neviere, M. Stackler, W. Albouy	An Experimental Technique For The Characterization Of Adhesive Joints Under Dynamic Multiaxial Loadings ¹
12:40 - 13:00	H.L. Dorothy, P. Longère, A. Dragon	Coupled ASB-and-microvoiding-assisted dynamic ductile failure ¹
13:00 - 14:00	LUNCH	
14:00 - 14:20	C. Francart, Y. Demarty, N. Bahlouli, S. Ahzi	Dynamic characterization and modeling of ductile failure of sintered aluminum alloy through shear-compression tests ¹
14:20 - 14:40	E.L. Grimsmo, L.E.B. Dæhli, O.S. Hopperstad, A. Aalberg, M. Langseth, A.H. Clausen	Comparison of damage models in numerical simulations of fillet welds under quasi-static and impact loading ¹
14:40 - 15:00	G. Mirone, R. Barbagallo, E. Cadoni	Tensile test of a HSLA steel at high strain rates with two different SHTB facilities ¹
15:00 - 15:20	P. Frankl, P. Church, P. Gould	Assessment of Ductile Fracture model in Pipe Fracture Scenario ¹
15:20 - 17:00	SESSION 3 - CHAIR: H. COUQUE AND L. PERONI	
15:20 - 15:40	BREAK	
15:40 - 16:00	G.C. Ganzenmüller, E. Blaum, D. Mohrmann, T. Langhof, D. Plappert, N. Ledford, H. Paul, and S. Hiermaier	A simplified design for a Split-Hopkinson Tension Bar with long pulse duration ¹
16:00 - 16:20	A. Gilat, J. Seidt	Material Testing in Support of the Development and Calibration of Constitutive Equations for Dynamic Plasticity and Fracture ²
16:20 - 16:40	G.T. (Rusty) Gray III, V. Livescu, C.P. Trujillo, C. Knapp, J. Carpenter, D. Jones	Structure / Property (Constitutive and Dynamic Strength / Ductile Damage) Characterization of Additively Manufactured (AM) 316L SS, 304L SS, and Tantalum ²
16:40 - 17:00	D.M. Dattelbaum, B.F. Schilling, J.M. Lang, C.F. Welch, J.A. Stull, B.E. Clements	Low pressure shock response and dynamic failure of high density- and ultra-high molecular weight polyethylene ²
17:00 - 18:30	DYMAT GENERAL ASSEMBLY	
19:30 - 22:00	RECEPTION - NIDAROS CATHEDRAL	

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08:30 - 11:35	SESSION 4 - CHAIR: A. H. CLAUSEN AND E. BUZAUD	
08:30 - 09:15	Keynote speaker D. Mohr	Predicting ductile fracture under extreme loading conditions: from multi-axial experiments to macroscopic modeling
09:15 - 09:35	P. Frueh, A. Heine, W. Riedel	Assessment of the Protective Properties of two Different UHA Steels Based on Material Testing and Numerical Simulation ¹
09:35 - 09:55	F. Hueto, M. Hokka, R. Sancho, J. Rämö, K. Östman, F. Gálvez, V-T. Kuokkala	High Temperature Dynamic Tension Behavior of Titanium Tested with Two Different Methods ¹
09:55 - 10:15	BREAK	
10:15 - 10:35	A. Mata-Diaz, J. Pernas-Sánchez, J.A. Artero-Guerrero, D. Varas, J. López-Puente	Numerical simulations of high velocity impacts of composite fragments ¹
10:35 - 10:55	L. Peroni, M. Scapin, M.E. Cristea, D. Gallina, G. Chiantoni	Evaluation of dynamic fracture toughness in ductile steel by means of a split Hopkinson pressure bar 3PB technique ¹
10:55 - 11:15	R. Sancho, D. Cendón, F. Gálvez	Mechanical behaviour of Al2024-T3 sheet metal at different strain-rates and temperatures ¹
11:15 - 11:35	E. Cadoni, M. Dotta, D. Forni, H. Kaufmann	Tensile behaviour of commercial aluminium alloys used in armour applications at high strain rate ¹
11:35 - 14:55	SESSION 5 - CHAIR: E. CADONI AND M. HOKKA	
11:35 - 11:55	BREAK	
11:55 - 12:15	H. Couque	Dynamic fracture strength of 90% tungsten alloys ¹
12:15 - 12:35	S. Chandran, P. Verleysen, J. Lian, W. Liu, S. Münstermann	Design of an experimental program to assess the dynamic fracture properties of a dual phase automotive steel ¹
12:35 - 12:55	W. Mocko	Influence of a loading direction on the fracture locus of Ti6Al4V Titanium alloy ¹
12:55 - 13:55	LUNCH	
13:55 - 14:15	G. Gruben, D. Morin, M. Langseth, O.S. Hopperstad	Ductile Fracture of Steel Sheets under Dynamic Membrane Loading ¹
14:15 - 14:35	S. Chandran, P. Verleysen, J. Lian, W. Liu, S. Cooreman, S. Münstermann	Dynamic fracture behavior of high strength pipeline steel ¹
14:35 - 14:55	H. Ren, X. Zhuang, T. Rabczuk	Implementation of GTN model in dual-horizon peridynamics ¹
14:55 - 17:35	SESSION 6 - CHAIR: P. VERLEYSEN AND S. GUERARD	
14:55 - 15:15	BREAK	
15:15 - 15:35	A.V. Gerasimov, S.V. Pashkov, Y.F. Khristenko, R.O. Cherepanov	Interaction of structural elements of space vehicles with high-velocity projectiles ¹
15:35 - 15:55	I.A. Volkov, L.A. Igumnov, A.A. Ipatov, I.V. Vorobtsov	On the issue of determining parameters in models and criteria of dynamic spallation fracture ¹
15:55 - 16:15	I.A. Volkov, I.V. Vorobtsov, L.A. Igumnov, I.P. Markov, S.Yu. Litvinchuk	A damaged medium model for describing dynamic spallation fracture ¹
16:15 - 16:35	BREAK	
16:35 - 16:55	N. Jacques, S. Mercier, A. Molinari	Simulation of strain localization and dynamic crack growth in ductile materials using micromechanical damage models ²
16:55 - 17:15	T. Fras, C.C. Roth, N. Faderl, D. Mohr	Fracture modeling of perforated Mars® 300 plates ²
17:15 - 17:35	L. Farbaniec, J. Patten, D. Chapman, D. Eakins	Implementation of a laser-based thermoreflectance diagnostic for full-field temperature measurements in SHPB experiments ²
19:30 - 23:00	BANQUET	

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09:00 - 12:05	SESSION 7 - CHAIR: O. S. HOPPERSTAD AND S. WALLEY	
09:00 - 09:45	Keynote speaker K. Ravi-Chandar	Characterization and validation of a constitutive and failure model for dynamic ductile failure ¹
09:45 - 10:05	A.M. Bragov, V.V. Balandin, A.Yu. Konstantinov, A.K. Lomunov, I.V. Vorobtsov, A.V. Kuznetsov, G.G. Savenkov	High-rate deformation and spall fracture of some metals ¹
10:05 - 10:25	A. Klavzar, F. Pursche, N. Herzig, T. Wolf	Ballistic limit thickness and failure of steel targets with different strengths under EFP impact ¹
10:25 - 10:45	BREAK	
10:45 - 11:05	W. Chen, Z. Guo, M. Hudspeth, N. Parab, T. Sun, K. Fezzaa	High-speed X-ray PCI and XRD during Dynamic fracture ¹
11:05 - 11:25	N. Herzig, S. Abdel-Malek, L.W. Meyer, S.J. Cimpoeu	Modeling of ductile failure in high strength steel ¹
11:25 - 11:45	C. O'Keeffe, J. Imbert-Boyd, M. Worswick, C. Butcher, S. Malcolm, J. Dykeman, P. Penner, C. Yau, R. Soldaat, W. Bernert	Examination of Mode I loading on resistance spot weld groups in tailored hot stampings ¹
11:45 - 12:05	M.J. Nemcko, C. Butcher, M.J. Worswick	Dynamic Fracture Characterization of Boron Steels with Tailored Properties ²
12:05 - 13:25	SESSION 8 - CHAIR: AA. REYES AND F. GALVEZ	
12:05 - 12:25	BREAK	
12:25 - 12:45	A. Vaz-Romero, J.A. Rodriguez-Martínez	The deterministic nature of the fracture location in the dynamic tensile testing of steel sheets ²
12:45 - 13:05	C.C. Roth, D. Mohr	Towards Reliable Shear Fracture Experiments at Low, Intermediate and High Strain Rates ²
13:05 - 13:25	C. Czarnota, N. Jacques, S. Mercier, A. Molinari, C. Faciu	Spall Fracture Prediction based on a multi-scale Approach for the Behavior of Porous Ductile Materials accounting for Microinertia ²
13:25 - 14:25	LUNCH	

¹ Paper in Proceeding

² Abstract