

MTDM 2024 Agenda

Sunday | July 7th, 2024

18:00	20:00	Welcome Reception @ Cha Café Do
-------	-------	--

Monday | July 8th, 2024

9:00	9:10	Opening Remark: Satoru Yoneyama Chair of Organizing Committee, Aoyama Gakuin University, Japan	
Prof. Masa Takashi Memorial Symposium			
9:10	10:10	Takashi Symposium Plenary Lecture Chair: Satoru Yoneyama	
		Nano-Porous Membranes Based on Force-network Technology -Theoretical Background, and Their Application in Engineering and Medicine <u>Igor Emri</u> ^a , Anja Emri ^a , Zhou Yue ^b , and Hongbing Lu ^b ^a University of Ljubljana, Ljubljana, Slovenia, ^b University of Texas at Dallas, Texas, USA	
Coffee Break			
10:35	11:50	Prof. Masa Takashi Memorial Symposium 1 Chair: Wei-Chung Wang	
10:35	11:00	A008	Integrated Accelerated Testing Methodology for CFRP Durability <u>Yasushi Miyano</u> ^a , Masayuki Nakada ^a ^a Materials System Research Laboratory, Kanazawa Institute of Technology, Japan
11:00	11:25	A015	Identifying Viscoelastic Constitutive Parameters Using The Stress Sensitivity Based Virtual Fields Method <u>Dingsi Sun</u> ^a , Keisuke Iizuka ^a , <u>Satoru Yoneyama</u> ^c ^a Aoyama Gakuin University, Japan
11:25	11:50	A024	Interlayer Adhesion and Fracture Toughness Improvement Through Insertion of CNT Sheets to Carbon Fiber Composite <u>Ning Bian</u> ^a , Yao Ren ^a , Ashutosh Shrivastava ^a , Zhong Wang ^a , Duck J. Yang ^a , Samit Roy ^b , Ray Baughman ^a , and <u>Hongbing Lu</u> ^a ^a the University of Texas at Dallas USA, ^b University of Alabama USA
Lunch Time			

Monday | July 8th, 2024

13:10	14:50	Prof. Masa Takashi Memorial Symposium 2 Chair: Hongbing Lu	
13:10	13:35	A021	Stress and Strain Analysis of Buffer Layers under Ball Drop Impact by High-speed Simultaneous Measurement System <u>Wei-Chung Wang</u> ^a , Po-Chi Sung ^a ^a Department of Power Mechanical Engineering, National Tsing Hua University, Taiwan
13:35	14:00	A042	Corrosion and Degradation Behavior of Aluminum and Copper Refrigerant Piping Seiji Uchiyama ^{a,b} , Satoshi Uemura ^b , Koji Hiraoka ^a , <u>Yuji Kimura</u> ^a and Shiro Seki ^a ^a Graduate School of Applied Chemistry and Chemical Engineering, Kogakuin University, Japan, ^b Sanki Engineering Co., Ltd. , Japan
14:00	14:25	A007	Improvement of Tensile Creep Life of CF/PP Unidirectional Tape by Annealing <u>Masayuki Nakada</u> ^a , Yasushi Miyano ^a , Yoko Morisawa ^a , Takeharu Isaki ^b , Taiki Hirano ^b , Kiyoshi Uzawa ^a ^a Materials System Research Laboratory, Kanazawa Institute of Technology, Japan ^b Polymers and Composite Materials Laboratory, Mitsui Chemicals Inc., Japan
14:25	14:50	A030	Viscoelastic Non-isochoric Plastic Behavior in Thermoplastics <u>Kenichi Sakaue</u> ^a and Yoshihiko Sato ^a ^a Shibaura Institute of Technology, Japan
Coffee Break			
15:15	16:55	Elasticity, Viscoelasticity, and Viscoplasticity 1 Chair: Kenichi Sakaue	
15:15	15:40	A033	Relationship between Stress Relation Behavior and Molecular Structure of Polyolefin <u>Takenobu Sakai</u> ^a , Suguru Ehara ^a ^a Graduate School of Science and Engineering, Saitama University, Japan
15:40	16:05	A004	Traversing through the Glass Transition of Amorphous Polymers: Thermodynamics and Polycarbonate <u>Mehrdad Negahban</u> ^a , Wenlong Li ^b , Jean-Marc Saiter ^c , Laurent Delbreilh ^c , Zheng Li ^d ^a University of Nebraska-Lincoln, USA, ^b Jiangsu University, China, ^c Universite de Rouen Normandie, France, ^d Peking University, China
16:05	16:30	A003	Evaluation on Hydrolysis-acceleration by Ultraviolet Irradiation for Fiber-reinforced PLA Composites with Hydrolysis-control Function <u>Mototsugu Takana</u> ^a , Koshiro Kamimura ^a , Yuki Katagiri ^a ^a Kanazawa Institute of Technology, Japan
16:30	16:55	A035	Impact Analysis for Elucidating the Mechanism of Traumatic Brain Injury onset <u>Ayu Kumagai</u> ^a and Yuelin Zhang ^b ^a Graduate School of Science and Technology, Sophia University, Japan, ^b Faculty of Science and Technology, Sophia University, Japan
17:00	17:30	MTDM Journal Editorial Board Meeting	

Tuesday | July 9th, 2024

9:00	10:00	Plenary Lecture Chair: Takenobu Sakai	
		Some Advances in Rheology Coupled with Synchrotron X-ray Scattering Experiments Marko Bek ^{a,b} , Reza Ghanbari ^a , Kim Nygård ^c , Ann Terry ^c , <u>Roland Kádár</u> ^{a,b,c,d} ^a Chalmers University of Technology, Sweden, ^b FibRe Vinnova Competence Centre, Chalmers, Sweden, ^c Wallenberg Wood Science Centre, Chalmers, Sweden, ^d MAX IV Laboratory, Lund University, Sweden	
Coffee Break			
10:25	11:40	Fatigue Chair: Masayuki Nakada	
10:25	10:50	A027	Fatigue Residual Life Estimation of CFRP Using Multi-Timescale Analysis and Prediction Models <u>Satoru Yoshimori</u> ^a , Jun Koyanagi ^a , Ryosuke Matsuzaki ^a ^a Tokyo University of Science, Japan
10:50	11:15	A001	Variable Loadings Fatigue Failure Predicted by Entropy Damage Criterion for a Viscoelastic Media <u>Li Yutong</u> ^a , Jun Koyanagi ^a ^a Department of Materials Science and Technology, Tokyo University of Science, Japan
11:15	11:40	A041	Evaluation of Crack Growth Characteristics of Stress Corrosion Cracking of Aluminum Alloy Under Humid Air Environment <u>Shota Hasunuma</u> ^a , Tomoyuki Hayase ^a ^a Aoyama Gakuin University, Japan,
Lunch Time			
13:00	18:00	Tour	
18:00	20:00	Banquet	

Wednesday | July 10th, 2024

9:00	10:00	Plenary Lecture Chair: Alex Arzoumanidis	
Wolfgang Knauss Young Investigator Awardee's Plenary Lecture			
Coffee Break			
10:25	12:05	3D Printing and Material Processing 1 Chair: Sota Oshima	
10:25	10:50	A013	Time-dependent Behavior of Polymer Matrix Composites on 3D Compaction Printing <u>Masahito Ueda</u> ^a , Yuki Asano ^a , and Naruki Ichihara ^a ^a Nihon University, Japan
10:50	11:15	A019	Effect of Moisture Absorption on Mechanical Properties of 3D Printed Thermoplastic Materials <u>Keisuke Iizuka</u> ^a , Satoru Yoneyama ^a ^a Department of Mechanical Engineering, Aoyama Gakuin University, Japan,
11:15	11:40	A039	Mechanical Work During Shape Recovery Process of Shape Memory Polymer <u>Saki Shibuya</u> ^a , Shuichi Arikawa ^b ^a Graduate School of Science and Technology, Meiji University, Japan, ^b Department of Mechanical Engineering Informatics, Meiji University, Japan
Lunch Time			
13:25	13:45	Committee Meeting	
13:45	15:15	Poster short presentation + poster session	
		A002	Molecular Dynamics Study of GaAs Crystal Structure at Low Defect Concentration Regime <u>Mary Clare Escaño</u> ^a , Tien Quang Nguyen ^b ^a Research Center for Development of Far-Infrared Region, University of Fukui, Japan, ^b Research Initiative for Supra-Materials, Shinshu University, Japan
		A006	Effect of Network Structure of Commercial Optical Glass on Thermo-viscoelastic Properties <u>Hiroaki Ito</u> ^a , and Yu Maeda ^b ^a Faculty of Engineering, Kindai University, Japan, ^b Graduate School of Systems Engineering, Kindai University, Japan
		A009	Delamination Inhibition in Unidirectional CFRP Laminates with PLY Discontinuities M. J. Mohammad Fikry ^a , Keisuke Iizuka ^b , Hayato Nakatani ^c , Satoru Yoneyama ^b , Vladimir Vinogradov ^d , <u>Shinji Ogihara</u> ^a ^a Tokyo University of Science, Japan, ^b Aoyama Gakuin University, Japan, ^c Osaka Metropolitan University, Japan, ^d Newcastle University, United Kingdom
		A025	High Strain-rate Compressive Properties of a Unidirectional Carbon/epoxy Laminated Composite at Low and High Temperatures <u>Kenji Nakai</u> ^a and Takashi Yokoyama ^a ^a Okayama University of Science, Japan

Wednesday | July 10th, 2024

	A031	<p>Effect of Addition Amount on Flow Velocity of Modified TCP/PLA Composite with Stearic Acid</p> <p><u>Masato Sakaguchi</u>^a, Tomohiro Marushima^b, Shun Wakayama^b</p> <p>^aGifu University, Japan, ^bSalesian Polytechnic, Japan</p>
	A034	<p>A Study on the Nonlinear Finite Element Analysis of Emergency Rubber Spring for Electric Multiple Unit Railway Vehicle Secondary Suspension System</p> <p><u>Kyung Sik Kim</u>^a, Chul Su Kima</p> <p>^aKorea National University of Transportation, Korea</p>
	A038	<p>Nano Deformation Behavior of Epoxy Adhesives studied by Atomic Force Microscopy and Coarse-grained Molecular Dynamics Simulations</p> <p><u>Masayoshi Ogawa</u>^a, Ikko Haba^a, Ayumu Morimura^a, Akio Yonezu^b</p> <p>^aPrecision Engineering Course, Graduate School of Science and Engineering, Chuo University, Japan, ^bDepartment of Precision Mechanics, Faculty of Science and Engineering, Chuo University, Japan</p>
	A044	<p>Photonic Sintering of Silver Nanoparticles in Aerosol Jet Printing</p> <p><u>Marcin Winnicki</u>^a, Małgorzata Rutkowska-Gorczyca^a, Wojciech Łapa^a, Bartosz Świadkowski^b</p> <p>^a Faculty of Mechanical Engineering, Wrocław University of Science and Technology, Poland, ^b Faculty of Microsystem Electronics and Photonics, Wrocław University of Science and Technology, Poland</p>
Coffee Break		
15:40	16:55	<p>Fatigue and Environment</p> <p>Chair: Hiroaki Ito</p>
15:40	16:05	<p>A011</p> <p>Hysteresis of Elastomeric Bearings in Shear Loading</p> <p>Berkay Biçer^a, Şebnem Özüpek^a</p> <p>^aBoğaziçi University, Istanbul, Turkey</p>
16:05	16:30	<p>A028</p> <p>Effects of Freeze-thaw Cyclic Conditioning on Mechanical Properties of Adhesively Bonded CFRP Joints</p> <p><u>Sota Oshima</u>^a, Keisuke Kitagawa^a, Tomo Takeda^b, Hisahi Kumazawa^b, Koichi Kitazono^a</p> <p>^aDepartment of Aeronautics and Astronautics, Tokyo Metropolitan University, Japan, ^bAviation Technology Directorate, Japan Aerospace Exploration Agency (JAXA), Japan</p>
16:30	16:55	<p>A023</p> <p>Fatigue Improvement of Glass Fiber Composite via Incorporating Aminated Graphene</p> <p>Ning Bian^a, Ashutosh Shrivastava^a, Runyu Zhang^a, Samsuddin Mahmood^b, Duck J Yang^a, <u>Hongbing Lu</u>^a</p> <p>^aThe University of Texas at Dallas, USA, ^bGrapheneTX Inc., USA</p>

Thursday | July 11th, 2024

9:00	10:15	Elasticity, Viscoelasticity and Viscoplasticity 2 Chair: Marko Bek	
9:00	9:25	A020	The Road Not Taken: Implications of Selecting WLF over Eyring/Polanyi in Nonlinear Viscoelasticity <u>Alex Arzoumanidis</u> ^a ^a Psylotech, USA, aarz@psylotech.com
9:25	9:50	A010	Observation of Crack Acceleration and Deceleration Phenomena in Rubber using Digital Image Correlation <u>Takeru Oomori</u> ^a , <u>Keisuke Iizuka</u> ^a , <u>Satoru Yoneyama</u> ^a ^a Aoyama Gakuinn University, Japan,
9:50	10:15	A012	Viscoelastic Foams under Repetitive Loading <u>Maira M. Foster</u> ^a , <u>Mark D. Herynk</u> ^a , <u>Leslie E. Lamberson</u> ^b ^a Lawrence Livermore National Laboratory, USA, ^b Colorado School of Mines, USA
Coffee Break			
10:40	11:55	Elasticity, Viscoelasticity and Viscoplasticity 3 Chair: Moira M. Foster	
10:40	11:05	A014	Viscoelastic Viscoplastic Modelling of Semi-crystalline Polymer Based on Crystal Perfection <u>Makoto Uchida</u> ^a , <u>Mei Touji</u> ^a , <u>Toyoshi Yoshida</u> ^a , <u>Yoshihisa Kaneko</u> ^a ^a Graduate School of Engineering, Osaka Metropolitan University, Japan,
11:05	11:30	A016	Unlocking Material Secrets: Innovating with Rheology, Moisture, and X-ray Techniques <u>Marko Bek</u> ^a , <u>Kim Nygård</u> ^b , <u>Ann Terry</u> ^b , <u>Roland Kádár</u> ^a ^a Chalmers University of Technology, Sweden, ^b MAX IV Laboratory, Lund University, Sweden
11:30	11:55	A017	Reproduction of Time-temperature Superposition Principle Considering Density on Creep Analysis by MD Simulation <u>Shihong Yuan</u> ^a , <u>Takenobu Sakai</u> ^b ^a Graduate School of Science and Engineering, Saitama University, Japan
Lunch Time			

Thursday | July 11th, 2024

13:15	14:30	Adhesive Bonding Chair: Yuichi Ono	
13:15	13:40	A037	On the Mechanism of Cyclic Fatigue Fracture of Adhesive Joints using Molecular Dynamics Simulations <u>Masayoshi Ogawa</u> ^a , Yuichi Hosoya ^a , Akihiro Shinozaki ^a , Akio Yonezu ^b ^a Precision Engineering Course, Graduate School of Science and Engineering, Chuo University, Japan, ^b Department of Precision Mechanics, Faculty of Science and Engineering, Chuo University, Japan
13:40	14:05	A043	Measurement of Adhesive Strength of Oxide Scale on Carbon Steel with Mn by a Laser Spallation Technique <u>Hideo Cho</u> ^a , Rei Hamano ^a , Kojiro Nishimiya ^a , Kousuke Hayashi ^b , Yasuyoshi Hidaka ^b ^a Department of Science and Engineering, Aoyama Gakuin University, Japan, ^b Nippon steel corporation, Japan
14:05	14:30	A036	An Approach to Evaluate Long-term Axial Force Variation in a Bolt Fastening FRP Laminates <u>Hiroshi Saito</u> ^a , Shunya Tamura ^b ^a Kanazawa Institute of Technology, Japan, ^b Graduate School of Engineering, Kanazawa Institute of Technology, Japan
Coffee Break			
14:55	16:35	Strain Stress Measurement Chair: Hiroshi Saito	
14:55	15:20	A005	Full-field Strain Measurement across Small to Large Deformations Using the Sampling Moire Method <u>Shien Ri</u> ^{a,b} , Hou Natsu ^a ^a National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, ^b Tokyo University of Science, Chiba, Japan
15:20	15:45	A029	Principal Stress Measurement Method using Grain Growth of Electrodeposited Nickel Foil <u>Ke Cheng</u> ^a , Takumi Tanimura ^b , Seiya Fukuda ^b , Yuichi Ono ^c ^a Graduate School of Engineering, Tottori University, Japan, ^b Graduate School of Sustainability Science, Tottori University, Japan, ^c Department of Mechanical and Physical Engineering, Tottori University, Japan
15:45	16:10	A040	Development of a Long-term Deformation Monitoring Method using the Digital Image Correlation and a Drone <u>Ryoji Odanaka</u> ^a , Takuma Matsuo ^a ^a School of Science and Technology, Meiji University, Japan
16:10	16:35	A032	Time Series 3D Displacements Measurement of Vibrating Structure Using Stereo Sampling Moire Method <u>Motoharu Fujigaki</u> ^a , Aoi Tamura ^a , Wei Jiang ^a ^a University of Fukui, Japan
16:35	16:40	Closing Remark	