

ICLASS 2015 - Session Program

August 24, 2015 (Monday)

August 24, 2015 (Monday)										
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Atomization I		Gasoline Spray I		Drop Breakup I		Diagnostic I				
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	147	Atomization of stretched Newtonian and non-Newtonian liquid bridges Christina Weickgenannt, Stefan Griesheimer, Hans M. Sauer, Ilia V. Roisman ¹ , Edgar Dörsam, Cameron Tropea	207	Droplet Size and Velocity Distribution of GDI Sprays under Different Vacuum Conditions Yanfei Li, Hengjie Guo, Xiao Ma, Jianxin Wang	009	Secondary atomization and vapor mixing characteristics of diesel/biodiesel/bioethanol fuel droplets due to puffing/microexplosion J. Shinjo, J. Xia, A. Megaritis, L. C. Ganippa	024	VOF Modeling of Fire Sprinkler Spray Patternation K. V. Meredith, X. Zhou, S. Jordan, A. Marshall	029	Characterization of atomization processes in suspension/emulsion sprays Walter Schäfer
	239	Artificial Control of Spray Dynamics Applying Fuel Design Approach Related to Flash Boiling J. Senda*, S. Miyata, E. Matsumura	010	Spray Pattern Optimization for Gasoline Direct Injection Engine Taehoon Kim, Seungpil Lee	007	Direct Numerical Simulation of Droplet Breakup in Homogeneous Isotropic Turbulence C. X. Shao, K. Luo*, J. R. Fan	109	SPH Simulation of a Twin-Fluid Atomizer Operating with a High Viscosity Liquid G. Chaussonnet, S. Braun, L. Wieth, R. Koch, H.-J. Bauer, A. Saenger, N. Djordjevic and T. Kolb	036	Quantifications of Liquid and Gas Mass Distributions Inside Aerated-Liquid Jets Using X-Ray Radiography and X-Ray Fluorescence Techniques Kuo-Cheng Lin, Scott Peltier, Campbell Carter, Alan Kastengren
	070	PDA Analysis of HFA/Ethanol pMDI Aerosols: An Improved Test Protocol and New Findings B.J. Myatt, D. Lewis, T. Church, G. Brambilla, G.K. Hargrave, H.K. Versteeg, E.J. Long, B. Gavgash	186	Numerical study on the impact of cavitation on the spray development processes for GDI injection M. Bode, T. Falkenstein, H. Pitsch, T. Kimijima, H. Taniguchi, T. Arima	097	A Study of Liquid-Liquid Secondary Fragmentation with Solidification M. Hadj-Achour, N. Rimbart, M. Gradeck, S. Castrillon-Escobar	119	Study on Heat Transfer of Biodiesel based on STL-Injector during Cold-start WANG Jun, KANG Yan	213	Ultra-high-speed Video Camera with 300 kpixels Operating at 40 Mfps T. G. Etoh, V. T. S. Dao, Q. A. Nguyen, H. D. Nguyen, C. Vo Le, K. Takehara, M. Tsuji, K. Tajima, H. Inumaru, H. van Kuijk, W. Klaassens
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	059	Comparison of Atomization Characteristics of CO ₂ Dissolved Diesel and Gasoline Dehao Ju*, Tingting Zhang, Haoyi Song, Xinqi, Qiao, Jin Xiao, Zhen Huang	017	Visualization and Simulation on the Spray Characteristics of GDI Injector E. J. Gwak, D. S. Choi, S. Y. Park	067	Experimental Investigation of the Charged Ethanol Dispersion in Oil Chengren Sun, Junfeng Wang, Dongbao Wang, Yuanping Huo	038	Modeling Evolution Process of CNG Spray for Poppet-valve Type DI Injector Mingi Choi, Sanghoon Lee	039	On Generating Combined Drop Size Distributions from Point Measurements in a Spray Kyle M. Bade and Rudi J. Schick
	144	Response of coaxial air-assisted liquid jets in an acoustic field: atomization and droplets clustering A. Ficuciello, J.B. Blaisot, F. Baillot, C. Richard, M. Théron	145	Fuel injection rate measurement of gasoline direct injection (GDI) injectors Balasubramanian N., Shamit Bakshi and Anand T.N.C.*	113	Interaction Effect of Geometry and Operating Condition on Spray Breakup of Swirl Effervescent Atomization Z. A. Ghaffar, S. Kasolang, A. H. A. Hamid, C. S. Ow, Diyar I. Ahmed, K. Imran Sainan	046	Numerical and experimental studies of liquid breakup at the surface of turbulent jets Amirreza Movaghar, David Sedarsky, Mark Linne, Alan R. Kerstein, Michael Overmann	108	Experimental Characterization of the Vapor Phase by Infrared Absorption. Application to a Swirled Air/Ethanol spray in Evaporation Downstream from a Turbojet Injection System Virgine BODOC
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133	Spray Analysis of a Multi-Orifice Electrostatic Atomization Nozzle with High Viscosity Vegetable Oils P.W. Vesely, J.S. Shrimpton, F. Mashayek, R.J. Schick, M. Thenin	240	Investigation of Spray-Air Flow Interaction of Superheated Sprays using High-Speed Two-Color PIV Technique Siriguleng Tong, Siqi Cheng, Min Xu, David L.S. Hung	075	Dynamics of Liquid Structures in Turbulent, Moderately Dense Spray Jets A. Lowe, A. Kourmatzis, A.R.Marsi	088	Simulation of Primary Atomization: Assessment of the Smoothed Particle Hydrodynamics (SPH) Method S. Braun, M. Krug, L. Wieth, C. Höfler, R. Koch, H.-J. Bauer	111	Sprays thermometry using two-color LIF and SLIPI Y.N. Mishra, S. Polster, F.A. Nada, E. Kristensson, E. Berrocal	

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	101	Phenomena of Drop Impact on Hot Surfaces: Pure Newtonian Liquids J. Breitenbach, I. Roismann, C. Tropea	092 Spray characterization of a six-hole PFI injector: Spatial and temporal variations Bhaskariyoti Mali, Rohit S. Pathania, Satyanarayanan R. Chakravarthy, Pramod S. Mehta	154 Newtonian and Non-Newtonian Liquid Droplet Breakup: Child Droplet Statistics Prashant Khare and Vigor Yang	140 Development of a numerical two-phase single-fluid RANS model using OpenFOAM applied to liquid jet atomization in agricultural applications Francisco FELIS; Ariane VALLET; Séverine TOMAS; Muriel AMIELH; Fabien ANSELMET	127 A High-Speed Process Monitoring System to Detect and Analyze Filaments and Droplet Collisions in Spray Processes in Real Time M. Klaiber, S. Simon, A. Lampa, U. Fritsching
	065	Effects of the Micro-burr on Diesel Spray Characteristics SUN Wei, WANG Qian*, HE Zhi-xia, GAO Zhi-sheng, LI Yun	093 Investigation of droplet coalescence during single and twin hole spray interactions in a multi-hole gasoline port fuel injector Rohit S. Pathania, Satyanarayanan R. Chakravarthy, Pramod S. Mehta	151 Investigation of Capillary Liquid Jet Breakup from a Dual Actuation Orifice Generator Driven by Pulsed Width Modulations Jian He and David L.S. Hung	206 A Comparison Droplet Formation for the Flexural Curvature Vibration and Flat Surface Vibration by Numerical Simulation A.Sugondo, M.Nakajima, T.Yung, M.Leorna	179 Simultaneous Flow Field Measurements of Fuel Droplet/Vapor and Ambient Gas for Non-Evaporating/Evaporating Diesel Sprays - Approach by Means of PIV and LIF-PIV Techniques Jingyu ZHU*, Keiya NISHIDA, Takumi UEMURA
	172	Large-eddy simulation studies of the effects of nozzle configurations on diesel spray atomization Yusong Yu, Guoxiu Li, Jiawei Ding, Taoming Jia	026 Experimental Investigations into the Effects of Deposits on Spray Behaviors of a GDI Injector Haoyi Song, Jin Xiao, Zhen Huang*, Yuyang Chen, Yang Li, Zhenhua Wang	199 Correlating Sheet Breakup and Ligament Statistics to Drop Size Distribution During Atomization in a Conical Fire Sprinkler Geometry Chetankumar S. Vegad, S. R. Chakravarthy, Amit Kumar	209 Supercritical Mixing and Flow Dynamics of Liquid Oxygen/Kerosene Swirl Coaxial Injectors Xingjian Wang, Vigor Yang	230 Quantitative Measurements of Shot-To-Shot Variation in Diesel Sprays A. B. Swantek, D. J. Duke, C. F. Powell, A. L. Kastengren
	217	Effects of injection pressure on spray characteristics and shock waves in supersonic fuel jets Taoming Jia, Guoxiu Li, Yusong Yu	214 Spray Characteristics of Gasoline-Biodiesel blends on a Common Rail System Sakda Thongchai, Tushar Ahmed, Ocktaeck Lim	227 Direct numerical simulations of hydrodynamic fragmentation of liquid metal droplets by a water flow S. Castrillon Escobar, N. Rimbert, R. Meignen, M. Hadj-Achour, M. Gradeck	116 Numerical simulation of non-evaporating sprays using Ω -Y model V. Kumar, A. Yeola, S. Patwardhan, M. Braun, J. Schuetze, D. Li	225 The effect of operating conditions on post-injection fuel discharge in an optical engine J. E. Turner, V. Stretsyuk, C. Crua*, M. R. Gold, R. J. Pearson
	251	Size and Distance of Droplets in Diesel Fuel Sprays K. Suzuki, N. Kawaharada, D. Sakaguchi, H. Ueki	155 Numerical Analysis of the Effect of Lubricating Oil on Preignition in a Boosted Gasoline Engine Y. Moriyoshi, K. Miyazaki, T. Kuboyama, T. Yamada, K. Morikawa	188 Instabilities in acoustically levitated and laser irradiated bi-component droplet Binita Pathak and Saptarshi Basu	211 Numerical simulation of evaporating diesel sprays using Ω -Y model V. Kumar, A. Yeola, M. Braun, J. Schuetze, D. Li	

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	165	Effect of Ambient Pressure on the Atomization Characteristics of Water Spray from a Fan Spray Injector R. Watanabe, N. Hiramoto, H. Ishii, T. Kudo, H. Kobayashi	096 Potential heterogeneous and homogeneous flow boiling conditions in a high-pressure diesel fuel injector F. Villa, A. Georgoulas, R. Salemi, R. M. McDavid, M. Marengo	232 Effect of the orifice structure on inception of in-nozzle cavitation W. D. Huang, Y. Gao, Z. J. Wu	034 Droplet Collisions and the Equilibrium Drop Size Distribution in Turbulent Dispersions Philipp Pischke, Reinhold Kneer	019 Construction of Nanoparticle Flame Synthesis Method by using Flash Boiling Spray - Investigation of TiO2 Nanoparticle Growth Process in Flame Synthesis Method M. Oshima, A. Yoneda, E. Matsumura, J. Senda
	085	Effects of Real-Fluid Thermodynamic State on Jet Instabilities during Atomization Process under Supercritical or Subcritical Environments YangJie Xu, GuoXiu Li, YuSong Yu	136 The Effects of Spray Angles on Soot Emissions of Diesel and Biodiesel Engines C. Shen, C. F. Lee	163 Numerical Prediction of Periodic Cavitation Shedding in Cylindrical Orifice S.K. Mouvanal, A. Burkhardt, D.Chatterjee, S.Bakshi	218 Simulation of Liquid and Gas Phase Characteristics of Aerated-Liquid Jets in Quiescent and Cross Flow Conditions K.-S. Im, K.-C. Lin, M.-C. Lai	062 Ink Droplet Evaporation-Condensation Characteristics Associated with Aerosol Jet® Technology for Precision Material Deposition James Q Feng
	180	Study of Fuel Spray Characteristics under Various Ambient Temperatures Using Dimensionless Analysis Tianyun Li, Min Xu, David L.S. Hung, Shengqi Wu, Qinglin Xu, Huijia Lv	056 The Model of an Atomizing Fuel Jet Oleksandr G. Girin	003 Numerical Investigation of Nozzle Cavitation Flow Characteristics for Diesel and Biodiesel Fuels by large Eddy Simulation (LES) Bifeng Yin	060 A New Model for the Drying of Mannitol-Water Droplets in Hot Air Above the Boiling Temperature H. Grosshans, M. Griesing, T. Hellwig, W. Pauer, H.-U. Moritz, E. Gutheil	064 Conductive CNT- and Graphene-Doped PEDOT:PSS Thin Films Fabricated by Ultrasonic Spray Coating F. Soltani-Kordshuli, F. Zabih, M. Eslamian
	020	Cavitation Effects on the Dispersion of Glowing Sprays in the Near-nozzle Region D.D. van der Voort, N.J. Dam, W. van de Water, R.P.J. Kunnen, H.J.H. Clercx, G.J.F. van Heijst	208 Liquid Penetration Length in Evaporating Spray of Hydrated Ethanol Diesel Emulsified Fuels Tao Guo, Tie Li, Qi Shi, Bin Wang	246 X-Ray Visualization of Cavitation in Nozzles with Various Sizes Akira Sou, Shinichiro Minami, Rubby Prasetya, Raditya Hendra Pratama, Seoksu Moon, Yoshitaka Wada, Hideaki Yokohata	115 Validation of Gasoline Direct Injection Combustion in a SI Engine Using ANSYS CFD Ishan Verma, Eric Bish, Martin Kuntz, Ellen Meeks, Karthik V. Pudukkamm, Chitral V. Naik	167 Numerical study on liquid jet breakup and droplet-wall interaction in High Pressure Die Casting process Mahdi Saeedipour, Stefan Pirker, Simon Schneiderbauer
			Atomization V	Diesel Spray II	Internal Flow II	Modeling V
13:30 15:10	178	Study of the Primary Breakup in Twin-Fluid Atomizers with regard to the Droplet Interaction Matouš Zaremba, Marek Mlkvik, Milan Malý, Jan Jedelský, Miroslav Jícha	174 Computational analysis of spray primary breakup in 2-stroke marine diesel engines with different nozzle layouts Imre Gergely Nagy, Andreas Schmid, Sebastian Hensel	182 Three-dimensional simulation of nozzle internal flow based on X-ray CT scan M.J.Zhu, Y.Gao, J.Deng, L.G.Li, Z.J.Wu	091 Semi-analytical Model of Oscillation of Liquid Metal Droplet in a Water Flow N. Rimbart, M. Hadj-Achour, S. Castrillon Escobar, M. Gradeck	103 Effect of atomizing air of external-mixing twin fluid atomizer on urea thermolysis Tae Hun Kim, Kun Woo Ku and Jung Goo Hong
	244	Primary breakup of a paint liquid by a coaxial high-speed gas jet used in spray painting processes B. Shen, Q. Ye, O. Tiedje, E. Westkämper	118 Effects of Ultra-High Injection Pressure and Micro-Hole Nozzle on Diesel Spray Characteristics under Evaporating Condition Wonkyu Cho, Youngsoo Park, Choongsik Bae*, Jun Yu, and Youngho Kim	190 High-Speed X-ray Imaging of In-Nozzle Cavitation and Emerging Jet Flow of Multi-Hole GDI Injector under Practical Operating Conditions S. Moon, K. Komada, Z. Li, J. Wang, T. Kimijima, Y. Maeda	126 Melting of non-spherical particles D. M. Kintea, I. V. Roisman, T. Hauk, C. Tropea	223 Assessment of Spray Envelope Using Droplet Breakup Regime and Mechanisms A. Adornato, A.A. Salaimh*, N. K. Akafuah, K. Saito
	123	Wave Formation and Ligament of Liquid Film in Horizontal Rectangular Duct Daichi TANAKA,	066 Characterization of Small Injection Amount Fuel Spray Injected by the Multi-Hole Nozzle for Diesel Engines P.B. Dong, T. Inaba, K. Nishida, Y. Ogata, D. Shimo, M. Namba	134 Correlation of Superheated Nozzle Internal Flow and Near-field Jet Breakup in a Two-Dimensional Transparent Nozzle Shengqi Wu, Min Xu, David L.S. Hung, Huijie Pan, Tianyun Li, Masataka Arai	176 Space-filtered kinetic theory for the LES of dense sprays F. Doisneau, M. Arienti, J. C. Oefelein	137 Spray Characteristics of Zirconia-ethanol Suspension by Twin Cathode Plasma Spray Gun N. Iki, M. Suzuki, T. Okada, and M. Shahien
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	033	Visualization of Secondary Breakup of Liquid Tin during Powder Production S. Sarkar, W.S. Prashanth, T.N.C. Anand, P. V. Sivaprasad, S. Bakshi	016 Investigation of the Near-Field of Sprays from Group-Hole Nozzles under Evaporating Conditions R. Gramlich, P. Leick, I.V. Roisman, C. Tropea	231 An Investigation of Pre-injection Flow Characteristics in a Constant Volume Combustion Chamber without Fan using the Particle Image Velocimetry (PIV) Technique Veeraphol Wang	047 Numerical Study of the Nozzle Geometrical Effects on Spray Characteristics in primary and Secondary Breakup Regimes Po-Wen Tu	069 Characterization and Structure of Spray-on P3HT:PCBM Film for Polymer Solar Cells Yu Xie

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15:30 17:30	195	Characterization of Pulsating Conical Fuel Spray in Co-Flowing Swirl Air Flow X.H. Wang, B. Paxton, S.-M. Jeng, Y.-H. Kao, M.-C. Lai	236	Effect of Nozzle Geometry on Diesel Spray Characteristics under Non-Evaporating and Evaporating Conditions C. J. Du, M. Andersson, S. Andersson	100	Experimental visualization and LES investigations on cloud cavitation shedding in a diesel nozzle orifice Chen Yuhang, He Zhixia*, Ji Changhao	247	Numerical Study of Fuel Spray and Mixture Formation in a Spark Ignition Engine with Asynchronous Intake Valve Timings Duc-Khanh Nguyen, Cheng-Wei Chen, Chih-Yung Wu, Ming-Hsun Wu	121	Interaction of Two Burning Drops along the Stream Direction P.K. Hsu, C.K. Chen, T.H. Lin
	193	Characterization of Pre-filming and Atomization Inside a Swirl Cup with Simplex Nozzle K. P. Shanmugas, S. R. Chakravarthy	077	Study on Empirical Formula for Spray Tip Penetration of Diesel Spray under High Ambient Gas Density Conditions T.Kanno, Y.Zama, N. Kakehashi, T. Ishima, T.Furuhata	254	Onset Conditions for Agglomeration of CO2 Snow Inside a Tube T.C. Lin, Y.H. Li, M.R. Wang, Y.J. Shen	149	Bubble formation under constant flow rate Jens-Michael Löwe and Ilia V. Roisman	006	Effects of finite-rate droplet evaporation on the extinction of spherical burner-stabilized diffusion flames Wang Han, Zheng Chen
	173	Large Eddy Simulation of jet interaction in liquid-liquid swirl coaxial injectors in N2H4/MMH bipropellant thruster Yusong Yu, Guoxiu Li, Jiawei Ding, Yangjie Xu	105	Flow Characteristics of Diesel Spray Impinging on a Wall under High Ambient Gas Density Conditions Y.Odawara	094	Experimental Investigation of the Effect of Nozzle Hole Shape on Internal Flow and Spray Characteristics Xicheng Tao, Zhixia He, Wenjun Zhong, Zhengyang Zhang, Xing Zhang	161	Numerical Study of Liquid Jet in Swirling Cross Flow Surya Prakash R., Mohit Jain, Raghunandan B. N., Ravikrishna R. V. , Gaurav Tomar	027	Study of Combustion and Soot Formation of DI-Spark Ignited Biofuel-Sprays in a Constant Volume Chamber Michael Storch, Matthias Koegl, Michael Wensing, Stefan Will, Lars Zigan
	076	Effects of biodiesel and blend on spray characteristics from swirl nozzle Hyunchang, Park and Suckju, Yoon	110	Introduction of the Remote Optical Connectivity Method M. Kaiser, N. Kawaharada, T. Hara, F. Dinkelacker	228	Advancement of Cavitation Model of Nozzle Internal Flow with Combination of Partical Image Velocimetry and High Speed Image Measurement Genmiao Guo, Zhixia He, Zhuang Shao, Qian Wang, Yu Jin	129	Vapor bubble growth in superheated liquids D. Dietzel, S. Fechter, C.-D. Munz, A. Kronenburg	169	Effects of Fuel Injection Rate in Two Piezo Injectors with Direct and Indirect Acting Mechanism on Diesel Combustion performance J. S. Kim, J. H. Chung, S. C. Jeong, J. W. Lee
	210	Experimental spray characterization for a double swirl coaxial air blast atomizer Srikrishna Sahu, Yannis Hardalupas, Alex Taylor	131	Development of Picosecond Fiber Laser for High Repetition Diesel Spray Imaging Hongjie Wang, Harsh Purwar, Mincheng Tang, Saïd Idlahcen, Ammar Hideur, Claude Rozé, Jean-Bernard Blaisot, Thomas Godin	216	Cavitation in Mini-Sac Nozzle and Injected Liquid Jet Raditya Hendra Pratama, Akira Sou, Yoshitaka Wada, Hideaki Yokohata	078	A Unified Jet Fuel Surrogate for Droplet Evaporation and Ignition Xiang Chen, C. P. Chen	175	Experimental Investigation of the Mechanisms of Cellular Instabilities Developing on Spherical Two-phase Flames Romain Thimothée, Christian Chauveau, Fabien Halter, Iskender Gökalp
	200	Effect of co-annular, isothermal swirling stream on droplet centricity in the spray field of a hollow cone spray atomizer Dilip Sanadi, Kuppuraj Rajamanickam, Saptarshi Basu			221	Turbulence and Bubble Dynamics Models to Simulate Transient Cavitation Flow in Fuel Injector Nozzle Barış Biçer, Akira Sou	164	Numerical modeling of cooling effect within a flashing liquid jet Hong Duc LE, Jean-Marc LACOME, François-Xavier DEMOULIN	259	Influence of Oxygen Concentration of Oxidant in Kerosene/Bio-oil Spray Combustion S. I. Yang, T. C. Hsu, C. Y. Wu, W. H. Chen

August 26, 2015 (Wednesday)

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		Atomization VII	Diesel Spray IV	Cross Flow	Others I	Flame/Combustion II
10:30 12:30	143	Multi-scale description and analysis of simulated liquid atomization processes Christophe Dumouchel, Thibaut Ménard, Wojciech Aniszewski	250 Simulation of Liquid and Gas Phase Characteristics of Aerated-Liquid Jets in Quiescent and Cross Flow Conditions M.-C. Lai, J. Shi, G. Dober, N. Guerrassi, Y. Meslem, S. Moon, Z. Li, J. Wang	160 Jet in cross flow- Influence of liquid jet entry conditions Surya Prakash R., Anubhav Sinha, Raghunandan B. N., Ravikrishna R. V.	005 Combustion Characteristics of Coal Particles in Blast Furnace Raceway under Various Injection Patterns and Operations S.W. Du, C.P. Yeh, W.H. Chen*, C.H. Tsai, J.A. Lucas	025 Combined Transported Joint Probability Density Function and Spray Flamelet Approach for the Simulation of Turbulent Dilute Ethanol Spray Flames Y. Hu, H. Olguin, E. Gutheil
	197	Direct numerical simulations of surface waves on shear thinning Praestol jets in the near nozzle region M. Ertl and B. Weigand	224 Droplet size and morphology characterization for diesel sprays under atmospheric operating conditions V.Stetsyuk, J. E. Turner, C. Crua, R. Pearson, M. Gold	049 Drop Size and Velocity Distributions of the Spray of Aerated Injection in Subsonic Crossflow A. Adebayo, K. A. Sallam, K. C. Lin, C. D. Carter	081 The Study of Particle Trajectories under the Influence of Coulombian Attraction by Charged Droplet Ziwen Zuo, Junfeng Wang, Yuanping Huo, Rongbing Xu	053 Spray Characteristics of a Fuel-water Internally Rapid Mixing Injector for Burner Combustion Y. Nada, Y. Kidoguchi, S. Yoshimura, K. Onoda, D. Asao, A. S. M. Arshad
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