

SSS'21 Session Schedule

October 30, 2021 (Saturday)

From	To	Room A	Room B	Room C	Room D	Room E
09:30	09:45	Opening Address				
09:45	10:00	Break				
10:00	11:40	1A1 (10:00-11:15)	1B1 (10:00-11:15)	1C1 (10:00-11:40)	1D1 (Organized Session) (10:00-11:40)	
		Modeling, Filtering, Control and Analysis of Stochastic Systems and Stochastic Processes (1)	System Identification and Parameter Estimation (1)	Stochastic Optimization Methods and Evolutionary Methods (1)	Stochastic Analytical Methods for Control and Filtering	
11:40	13:00	Lunch				
13:00	14:00	1A2 (Special Lecture) (13:00-14:00)				
		HJB Equations of Stochastic Control Problems with Exponential Type Criteria Hideo Nagai (MMDS, Osaka Univ.)				
14:00	14:20	Break				
14:20	16:00	1A3 (14:20-16:00)	1B3 (14:20-15:35)	1C3 (14:20-16:00)	1D34 (Organized Session) (14:20-17:35)	
		Modeling, Filtering, Control and Analysis of Stochastic Systems and Stochastic Processes (2)	System Identification and Parameter Estimation (2)	Stochastic Optimization Methods and Evolutionary Methods (2)	Quantitative Finance	
16:00	16:20	Break				
16:20	18:25	1A4 (16:20-17:35)	1B4 (16:20-17:35)	1C4 (Organized Session) (16:20-18:25)		
		Neural Networks and Chaotic Systems	Image Processing and Pattern Recognition (1)	Stochastic Control and Dynamical Systems (1)		
					Filtering of Stochastic Systems	

SSS'21 Session Schedule

October 31, 2021 (Sunday)

From	To	Room A	Room B	Room C	Room D
10:00	11:40	2A1 (10:00-11:40)	2B1 (10:00-11:40)	2C1 (Organized Session) (10:00-11:40)	2D12 (Organized Session) (10:25-14:55)
		Applications in Engineering related to Stochastic Processes and Stochastic Systems (1)	Mathematical Finance (1)	Mathematical Theory of Stochastic and Deterministic Controls	Investment Problems in Finance and Insurance
11:40	13:00	Lunch			
13:00	13:20	Award and Announcement of SSS'22 Next Year			
13:20	13:40	Break			
13:40	14:55	2A2 (13:40-14:55)	2B2 (13:40-14:55)	2C2 (Tutorial Lecture) (13:40-14:40)	
		Applications in Engineering related to Stochastic Processes and Stochastic Systems (2)	Mathematical Finance (2)	Rare Event Modeling for Linear Estimation and Control Kenji Kashima (Kyoto Univ.)	
14:55	15:15	Break			
15:15	16:55	2A3 (15:15-16:30)	2B3 (15:15-16:30)	2C3 (Organized Session) (15:15-16:55)	2D3 (Organized Session) (15:15-16:55)
		Applications in Engineering related to Stochastic Processes and Stochastic Systems (3)	Image Processing and Pattern Recognition (2)	Stochastic Control and Dynamical Systems (2)	Filtering and System Identification

October 30, 2021 (Saturday), Room A

1A1: Modeling, Filtering, Control and Analysis of Stochastic Systems and Stochastic Processes (1) Chair: Takayuki Wada (Osaka University)	
10:00	Performance Assessment of Controllers based on Optimally Controlled Stationary States of Stochastic Systems Masahiko Tamai (Toshiba Lighting & Technology Corporation) Hiroyuki Asahara (Okayama University of Science) Hirokazu Ohtagaki (Okayama University of Science)
10:25	Stochastic Viscosity Solution to Obstacle SPDE Tadashi Hayashi (Mitsubishi UFJ Trust and Banking Corporation)
10:50	Characterization of stochastic equilibrium controls by the Malliavin calculus Jiang Yu Nguwi (Nanyang Technological University)

1A2: Special Lecture Chair: Jiro Akahori (Ritsumeikan University)	
13:00 (60min)	HJB Equations of Stochastic Control Problems with Exponential Type Criteria Hideo Nagai (MMDS, Osaka University)

1A3: Modeling, Filtering, Control and Analysis of Stochastic Systems and Stochastic Processes (2) Chair: Yasumasa Fujisaki (Osaka University)	
14:20	A Novel Approach to the Optimal Control of an SIR Epidemic Model with Vaccination Akira Ohsumi (Prof. Emeritus of Kyoto Institute of Technology)
14:45	Variational Deep Solver of Variational Inequalities Koji Moritoki (Ritsumeikan University) Jiro Akahori (Ritsumeikan University) Shogo Semba (Ritsumeikan University) Nobuto Seo (Ritsumeikan University)
15:10	An Algebraic Approach to The Ramer-Kusuoka Formula and Its Applications Tasuku Kubo (Ritsumeikan University)
15:35	On the Distribution of Square Integral of Fractional Brownian Motion Kenji DOHI (Ritsumeikan University)

1A4: Neural Networks and Chaotic Systems Chair: Yoji Morita (Kyoto University of Advanced Science)	
16:20	Bifurcation Phenomena of Nonlinear Systems Described by Swing Equation and Its Piece-wise Continuous Maps Takahiro Yamaguchi (Okayama University of Science) Hiroyuki Asahara (Okayama University of Science) Hirokazu Ohtagaki (Okayama University of Science)
16:45	An introduction to Neural Stochastic Differential Equations Takahiro Tsuchiya (Aizu University)
17:10	Solving the Steiner Tree Problem in Graphs with a Chaotic Neural Network: a Time-Series Analysis of the Objective Function Value Misa Fujita (Chukyo University) Tatsuya Saito (Chukyo University)

October 30, 2021 (Saturday), Room B

1B1: System Identification and Parameter Estimation (1) Chair: Yuichi Sawada (Kyoto Institute of Technology)	
10:25	Estimation of Bivariate SVAR Systems via Small Random Perturbations Yoji Morita (Professor emeritus of Kyoto University of Advanced Science) Yoshitaka Sawada (Kyoto University of Advanced Science) Shigeyoshi Miyagawa (Professor emeritus of Kyoto University of Advanced Science)
10:50	Estimation of Epidemiological Parameters of the SIR Model Akira Ohsumi (Prof. Emeritus of Kyoto Institute of Technology)

1B3: System Identification and Parameter Estimation (2) Chair: Yuichi Sawada (Kyoto Institute of Technology)	
14:20	The influence of velocity refresh in Sequential MCMC with the Invertible Particle Flow and Discrete Bouncy Particle Sampler Yu Han (Meiji University) Kazuyuki Nakamura (Meiji University)
14:45	Multirate SOC Estimation of Lithium-Ion Batteries using Constant Phase Element Model Takao Kikuchi (Ritsumeikan University) Kiyotsugu Takaba (Ritsumeikan University)
15:10	Parameter estimation of a random Duffing-van der Pol system via Fokker-Planck type residual Katsutoshi Yoshida (Utsunomiya University) Yoshikazu Yamanaka (Utsunomiya University)

1B4: Image Processing and Pattern Recognition (1) Chair: Yoshiharu Koya (Kobe City College of Technology)	
16:20	Optimal Ellipse Fitting for Detecting Contour of Pill Bugs Nanami Fujiwara (Fukuoka Institute of Technology) Hiroyuki Fujioka (Fukuoka Institute of Technology) Kaoru Fujioka (Fukuoka Women's University)
16:45	Hierarchical lossless compression method for digital pathology using CNN predictors Ryo Nakazawa (Chukyo University) Yuki Kawai (Hagiwara Techno Solutions) Tsuyoshi Otake (Tamagawa University) Hisashi Aomori (Chukyo University) Ichiro Matsuda (Tokyo University of Science) Susumu Itoh (Tokyo University of Science)
17:10	Reconstruction-Based Super-Resolution using Cellular Neural Networks Predictors Controlled by Edge Orientation Yusuke Itano (Chukyo University) Ryuya Ukai (Mitsubishi Electric Engineering) Tsuyoshi Otake (Tamagawa University) Hisashi Aomori (Chukyo University)

1C1: Stochastic Optimization Methods and Evolutionary Methods (1) Chair: Kazuyuki Nakamura (Meiji University)	
10:00	On the Effect of Norm Selection in Scenario Approach to Robust Feasibility Problem Tomoyuki Iori (Osaka University) Yasumasa Fujisaki (Osaka University)
10:25	A new higher order scheme for solving non-linear PDEs implied by a non-linear discrete Clark-Ocone formula Yui Furuichi (Ritsumeikan University)
10:50	Local Bifurcation Points Derivation Method in Autonomous Systems Using Particle Swarm Optimization Tomoki Gotoh (Chukyo University) Hiroaki Kurokawa (Tokyo University of Technology) Haruna Matsushita (Kagawa University) Takuji Kousaka (Chukyo University)
11:15	Sparse Robust Control Design via Scenario Program Zhicheng Zhang (Osaka University) Yasumasa Fujisaki (Osaka University)

1C3: Stochastic Optimization Methods and Evolutionary Methods (2) Chair: Takahiro Tsuchiya (Aizu University)	
14:20	An Evaluation of Parallelized Nested Layer Particle Swarm Optimization for Bifurcation Point Detection Tomo Hasegawa (Tokyo University of Technology) Haruna Matsushita (Kagawa University) Takuji Kousaka (Chukyo University) Hiroaki Kurokawa (Tokyo University of Technology)
14:45	Mixing time and simulated annealing for the stochastic cellular automata Bruno Hideki Fukushima-Kimura (Hokkaido University) Satoshi Handa (atama plus K.K) Katsuhiko Kamakura (Hokkaido University) Yoshinori Kamijima (Hokkaido University) Akira Sakai (Hokkaido University)
15:10	A Direct Method for Solving Hamilton-Jacobi-Bellman Equations via Deep Learning Nobuto Seo (Ritsumeikan University) Jiro Akahori (Ritsumeikan University) Reika Kambara (Ritsumeikan University) Koji Moritoki (Ritsumeikan University)
15:35	A Numerical Scheme for Solving Stochastic Control Problems via Stochastic Hamiltonian Systems Shogo Semba (Ritsumeikan University) Jiro Akahori (Ritsumeikan University) Takatoshi Hirano (Ritsumeikan University) Reika Kambara (Ritsumeikan University)

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October 30, 2021 (Saturday), Room C (2/2)

1C4 (Organized Session): Stochastic Control and Dynamical Systems (1) Organizers & Co-Chairs: Kiyotsugu Takaba and Daisuke Tarama (Ritsumeikan University)	
16:20	[Invited] On the Mathematical Analysis for the Stochastic Infectious Model under Subclinical Infections and Vaccination Masaaki Ishikawa (Yamaguchi University)
16:45	[Invited] On Recursive Quantum State Smoothing Kentarō Ohki (Kyoto University)
17:10	[Invited] A stochastic variational principle for the compressible Navier-Stokes equation Xin Chen (Shanghai Jiao Tong University) Ana Bela Cruzeiro (University of Lisbon) Tudor S. Ratiu (Shanghai Jiao Tong University)
17:35	[Invited] Optimal control of the SIR epidemic model by using dynamical systems theory Kazuyuki Yagasaki (Kyoto University)
18:00	[Invited] Optimal stochastic control problems in space-time domains Ana Bela Cruzeiro (University of Lisbon) Carlos Oliveira (University of Lisbon) Jean-Claude Zambrini (University of Lisbon)

October 30, 2021 (Saturday), Room D

1D1 (Organized Session): Stochastic Analytical Methods for Control and Filtering Organizer & Chair: Jun Sekine (Osaka University)	
10:00 (50min)	<p>[Invited] Second-Order PHD Filtering for Repulsive Ground Truth Dynamics Using Determinantal Point Processes</p> <p style="text-align: right;">Nicolas Privault (Nanyang Technological University) Timothy Teoh (Nanyang Technological University)</p>
10:50	<p>Zero-Sum Stackelberg Stochastic Linear-Quadratic Differential Games</p> <p style="text-align: right;">Jingrui Sun (Southern University of Science and Technology) Hanxiao Wang (National University of Singapore) Jiaqiang Wen (Southern University of Science and Technology)</p>
11:15	<p>Existence and probabilistic representation of the solutions of semilinear parabolic PDEs with fractional Laplacians</p> <p style="text-align: right;">Guillaume Penent (Nanyang Technological University)</p>
1D34 (Organized Session): Quantitative Finance Organizer & Chair: Yong Hyun Shin (Sookmyung Women's University)	
14:20 (50min)	<p>[Invited] Asset Pricing with Consumption Frictions</p> <p style="text-align: right;">Kyung Jin Choi (University of Calgary) Junkee Jeon (Kyung Hee University) Hyeng Keun Koo (Ajou University)</p>
15:10	<p>Consumption and Portfolio Selection with Recursive Utility, Stochastic Income, and Liquidity Constraints</p> <p style="text-align: right;">Kyoung Jin Choi (University of Calgary) Minsuk Kwak (Hankuk University of Foreign Studies) Byung Hwa Lim (The University of Suwon)</p>
15:35	<p>Valuing Real Options with Scale-dependent Payoff</p> <p style="text-align: right;">Kyoung Jin Choi (University of Calgary) Minsuk Kwak (Hankuk University of Foreign Studies)</p>
16:00	Break
16:20	<p>Personal Bankruptcy and Post-bankruptcy Liquidity Constraint</p> <p style="text-align: right;">Ho-Seok Lee (Kwangwoon University) Byung Hwa Lim (The University of Suwon)</p>
16:45	<p>Irreversible investment problem with finite horizon under regime-switching with jumps</p> <p style="text-align: right;">Sunju Lee (National Institute for Mathematical Sciences) Younhee Lee (Chungnam National University)</p>
17:10	<p>Optimal Market-Making Strategies Under Synchronised Order Arrivals with Deep Neural Networks</p> <p style="text-align: right;">So Eun Choi (Korea Advanced Institute of Science and Technology) Hyun Jin Jang (Ulsan National Institute of Science and Technology) Kyungsub Lee (Yeungnam University) Harry Zheng (Imperial College London)</p>

October 30, 2021 (Saturday), Room E

1E34 (Organized Session): Filtering of Stochastic Systems Organizers & Co-chairs: Jiro Akahori and Arturo Kohatsu-Higa (Ritsumeikan University)	
15:10 (50min)	[Invited] Stochastic filtering for singular kinetic equations Andrea Pascucci (University of Bologna)
16:00	Break
16:20 (50min)	[Invited] Online performance assessment of particle filters with adaptive computational complexity Joaquín Míguez (Universidad Carlos III de Madrid) V́ctor Elvira (University of Edinburgh) Petar M. Djurić (Stony Brook University)
17:10 (50min)	[Invited] The ensemble Kalman filter and its extension to nonlinear filtering problems Sebastian Reich (University of Potsdam)
18:00 (50min)	[Invited] Particle Approximations for Fluid Dynamics Models Dan Crisan (Imperial College London)

October 31, 2021 (Sunday), Room A(1/2)

2A1: Applications in Engineering related to Stochastic Processes and Stochastic Systems (1)	
Chair: Satoru Goto(Saga University)	
10:00	<p>Calculation of Lyapunov Exponent in DC-DC Converter with Photovoltaic Module</p> <p style="text-align: right;">Satoshi Aoki (Okayama University of Science) Takuji Kousaka (Chukyo University) Shota Uchino (Anan College) Hirokazu Ohtagaki (Okayama University of Science) Hiroyuki Asahara (Okayama University of Science)</p>
10:25	<p>PPP algorithms with QZSS CLAS by identifying measurement noise covariances</p> <p style="text-align: right;">Katsumasa Miyatake(Mitsubishi Electric Corp.) Kento Suzuki (Ritsumeikan University) Yukihiro Kubo (Ritsumeikan University) Sueo Sugimoto (Ritsumeikan University)</p>
10:50	<p>PPP Algorithms based on GR models by applying CLAS and the Fixed Point Smoother</p> <p style="text-align: right;">Kento Suzuki (Ritsumeikan University) Katsumasa Miyatake(Mitsubishi Electric Corp.) Yukihiro Kubo (Ritsumeikan University) Sueo Sugimoto (Ritsumeikan University)</p>
11:15	<p>Analysing Relationship between Muscle of Facial Activity and Voice Formant / Vocal Or-gans Shape during Sound Adjustments</p> <p style="text-align: right;">Shogo Saito(Tokyo Denki University) Tomoki Yanagida(Tokyo Denki University) Taiga Sasame(Tokyo Denki University) Keisuke Ota(Tokyo Denki University) Izumi Hanazaki(Tokyo Denki University)</p>
2A2: Applications in Engineering related to Stochastic Processes and Stochastic Systems (2)	
Chair: Hiroyuki Asahara (Okayama University of Science)	
13:40	<p>An application of deep learning for rainfall intensity estimation using GNSS receiver</p> <p style="text-align: right;">Yutaka Nakagawa (NAIST) Takeshi Higashino (NAIST) Minoru Okada (NAIST)</p>
14:05	<p>Emergency Communication Network Using Disaster Aid Vending Machines Based on α-type Learning Automata</p> <p style="text-align: right;">Kou Okada (National Institute of Technology, Matsue College) Mothoshi Hara (National Institute of Technology, Matsue College) Noriyo Kanayama (National Institute of Technology, Matsue College) Toru Watanabe (National Institute of Technology, Matsue College) Satoru Kato (National Institute of Technology, Matsue College) Hiroyuki Kamaya (National Institute of Technology, Hachinohe College)</p>
14:30	<p>Speech Training System for the Hearing Impaired</p> <p style="text-align: right;">Yuki Motoda (Kobe City College of Technology) Yoshiharu Koya (Kobe City College of Technology)</p>

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October 31, 2021 (Sunday), Room A(2/2)

2A3: Applications in Engineering related to Stochastic Processes and Stochastic Systems (3)

Chair: Hiroyuki Fujioka (Fukuoka Institute of Technology)

15:15	Bayesian Reliability Analysis for Degradation Data Based on Stochastic Process Models Toru Kaise (University of Hyogo)
15:40	GNSS RAIM Algorithms for Train Positioning Assisted by Railway Route Maps Yoshihito Oota (Ritsumeikan University) Kento Suzuki (Ritsumeikan University) Yukihiro Kubo(Ritsumeikan University)
16:05	A Pseudomeasurement Approach to State Estimation for Liquid Level Control of Separator in an OTEC Plant Using Uehara Cycle Kotaro Ushijima(Saga University) Yoshitaka Matsuda(Saga University) Takenao Sugi(Saga University) Satoru Goto(Saga University) Takafumi Morisaki(Saga University) Takeshi Yasunaga(Saga University) Yasuyuki Ikegami(Saga University)

October 31, 2021 (Sunday), Room B

2B1: Mathematical Finance (1) Chair: Takahiro Tsuchiya (Aizu University)	
10:00	Continuous Time Portfolio Optimization with Twice Integrated Kernel-Based Collocation Masashi IEDA (Tokyo University of Science)
10:25	Diffusion Estimation via Signatures Takatoshi Hirano (Ritsumeikan University) Jiro Akahori (Ritsumeikan University) Shogo Semba (Ritsumeikan University) Nobuto Seo (Ritsumeikan University)
10:50	On a determination formula for the estimation of copula-based Value at Risk Andres Mauricio Molina Barreto (Chuo University) Naoyuki Ishimura (Chuo University) Koichiro Takaoka (Chuo University)
11:15	Market Simulator Driven by Malliavin-Manchino Method Reika Kambara (Ritsumeikan University) Jiro Akahori (Ritsumeikan University) Takatoshi Hirano (Ritsumeikan University) Koji Moritoki (Ritsumeikan University)

2B2: Mathematical Finance (2) Chair: Naoyuki Ichihara (Aoyama Gakuin University)	
13:40	Nisio semigroups on graphs and their asymptotic behavior in view of applications to finance Yu Sobajima (Ritsumeikan University)
14:05	A Generalization of The Recovery Theorem: A Heat Kernel Approach VU Huy Hoang (Ritsumeikan University)
14:30	Tanaka-Yor Equation and its Application to Stochastic Differential Equations Yuma Tamura (Ritsumeikan University Graduate School)

2B3: Image Processing and Pattern Recognition (2) Chair: Kunihiro Oura (Kokushikan University)	
15:15	Fast Implementation of Automatic Building Extraction Using Color Cluster Analysis from Scenery Image Takuya Futagami (Osaka Electro-Communication University) Noboru Hayasaka (Osaka Electro-Communication University)
15:40	Real-Time Application for Detection of Raised Hands and Personal Identification by Deep Learning Algorithms for Camera Images Atsushi Ogino (Konan University) Masahiro Tanaka (Konan University)
16:05	NLOS Satellite Detection Methods for Improving GNSS Positioning Accuracy Daichi Morimoto (Ritsumeikan University) Yukihiro Kubo (Ritsumeikan University) Yoshiharu Koya (Kobe city college of Technology)

October 31, 2021 (Sunday), Room C

2C1 (Organized Session): Mathematical Theory of Stochastic and Deterministic Controls
Organizer & Chair: Hidehiro Kaise (Kumamoto University)

10:00	Ergodicity of optimal feedback diffusions for stochastic ergodic control problems with inward drift Naoyuki Ichihara (Aoyama Gakuin University)
10:25	Inverse problems for continuous-time stochastic optimal controls Yumiharu Nakano (Tokyo Institute of Technology)
10:50	Infinite horizon optimal control problems of stochastic Volterra integral equations Yushi Hamaguchi (Osaka University)
11:15	Partially observed H^∞ -control for discrete-time path-dependent systems: A small noise limit of risk-sensitive stochastic control Hidehiro Kaise (Kumamoto University)

2C2: Tutorial Lecture
Organized by IEEE CSS Kansai Chapter
Chair: Kiyotsugu Takaba (Ritsumeikan University)

13:40 (60min)	Rare Event Modeling for Linear Estimation and Control Kenji Kashima (Kyoto University)
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2C3 (Organized Session): Stochastic Control and Dynamical Systems (2)
Organizers & Co-Chairs: Kiyotsugu Takaba and Daisuke Tarama (Ritsumeikan University)

15:15	[Invited] Value Iteration with Gaussian Process Regression for Optimal Control of Continuous-Time Nonlinear Systems Hirofumi Beppu (Kyoto University) Ichiro Maruta (Kyoto University) Kenji Fujimoto (Kyoto University)
15:40	[Invited] A study of backward stochastic differential equation on a Riemannian manifold Xin Chen (Shanghai Jiao Tong University) Wenjir Ye (Shanghai Jiao Tong University)
16:05	[Invited] On Stability Analysis of Stochastic Systems with Quasi-singular Control Laws Yuki Nishimura (Kagoshima University)
16:30	[Invited] On stochastic extensions of nonholonomic constraints François Gay-Balmaz (CNRS Ecole Normale Supérieure) Vakhtang Putkaradze (University of Alberta)

October 31, 2021 (Sunday), Room D

2D12 (Organized Session): Investment Problems in Finance and Insurance Organizers & Co-chairs: Kazuhiro Yasuda (Hosei University) and Jun Sekine (Osaka University)	
10:25	Robust consumption-investment with return ambiguity: A dual approach with risk ambiguity Hoi-Ying Wong (The Chinese University of Hong Kong)
10:50	Estimation of Market Impact in the Japanese Stock Market Shunsuke Nakamura(Hosei university) Kazuhiro Yasuda(Hosei university)
11:15	On Optimal Execution Problem with Market Impact for Specific Case Tsubasa Ito (Hosei University) Kazuhiro Yasuda (Hosei University)
11:40	Break (13:00–13:20; Award and Announcement at Room A) (13:20–13:40; Break)
13:40	Numerical Experiment of Pairs Trading Strategies During Pandemic in the Japanese Stock Market Zhuoya Wang(Hosei University) Kazuhiro Yasuda(Hosei University)
14:05	Three Fund CPPI Strategy under a Factor Model Kazuhiro Yasuda (Hosei University)
14:30	Numerical study for expected power utility maximization of insurers Hiroaki Hata(Hitotsubashi University) Kazuhiro Yasuda(Hosei University)

2D3 (Organized Session): Filtering and System Identification Organizer & Chair: Masaya Murata (JAXA)	
15:15	[Invited] My Research Topics in Stochastic Systems Tohru Katayama (Professor Emeritus Kyoto University)
15:40	[Invited] Development of State Estimation Method for Automatic Loading of Excavators Shinji Ishihara (Hitachi Ltd.)
16:05	Studies on Regression Models between the Numbers of Coronavirus Case confirmed and Coronavirus Fatalities in Japan Sueo Sugimoto (Ritsumeikan University) Teruyo Wada (Osaka University)
16:30	Gaussian Sum Filter with Equal Mixture Weights Masaya Murata (JAXA)