Welcome Reception

March 21	
18:00-20:00	Hotel New Otani Nagaoka (Room "Sakura", 3rd Floor)

Banquet

March 23	
19:00-21:00	Hotel New Otani Nagaoka (Room "Hakucho", 2nd Floor) Fee: 5,000 yen/person

Registration Desk

March 21	
15:00-19:00	Hotel New Otani Nagaoka (Room "Sakura", 3rd Floor)
March 22	
08:30-18:00	Nagaoka University of Technology
March 23	
08:30-16:00	Nagaoka University of Technology
17:30-19:30	Hotel New Otani Nagaoka (Room "Hakucho", 2nd Floor)
March 24	
08:30-15:00	Nagaoka University of Technology

Technical Tours

・**Culture tour March 23 13:00-17:00**

Nagaoka University of Technology(Lecture Bldg. 2nd Floor Front Desk) -> **Kome Hyappyo Statues** -> **Yahiko Shrine** -> Nagaoka U.T.

Kome Hyappyo Statues

Nagaoka was defeated in the Boshin Civil War and the Nagaoka han (feudal domain) was devastated. One hundred sacks of much-needed rice arrived as emergency relief. Rather than distribute the rice, Torasaburo Kobayashi, the Grand Councilor of the han, sold it and used the money to establish a school. This historical anecdote symbolizes the idea that patience and perseverance in the present will lead to profit in the future.

Social Events

・**Laboratory tour March 24 12:40-13:30**

Nagaoka University of Technology(Lecture Bldg. 2nd Floor Front Desk) -> **Motion control Lab.** -> Lecture Bldg.

Motion control Lab.(http://hp73.nagaokaut.ac.jp/index_en.html) research into the motion control and robot control. Main research themes are "High performance control method for industrial robot", "The tracking control for high speed optical disk" and "Anti-slip/skid re-adhesion control system for train".

Conference Program

March 22			
09:00-09:20	Opening Session (Lecture Hall)		
09:20-10:20	Plenary Session 1 (Lecture Hall)		
10:20-10:40	**Coffee Break**		
	Room 1	**Room 2**	**Room 3**
10:40-12:20	**1. Mon1-1(SS1)** **Friction Modeling and Compensation in Precision Motion Control**	**2. Mon2-1(SS3)** **Mechatronics Applications I**	**3. Mon3-1(SS8)** **Network-Based Control Systems I**
12:20-13:40	**Lunch**		
13:40-15:40	**4. Mon1-2(SS1)** **Modeling and Compensation for Nonlinearities in Motion Control Applications**	**5. Mon2-2(SS7)** **Biped Robots I**	**6. Mon3-2(SS5)** **Image Processing**
15:40-16:00	**Coffee Break**		
16:00-18:00	**7. Mon1-3** **Intelligent Motor Drive**	**8. Mon2-3(SS3)** **Mobile System Control I**	**9. Mon3-3** **Sensing and Control I**

March 23			
09:20-10:20	Plenary Session 2 (Lecture Hall)		
10:20-10:40	**Coffee Break**		
	Room 1	**Room 2**	**Room 3**
10:40-12:20	**10. Tue1-1** **Advanced Mechatronics I**	**11. Tue2-1** **Force Interaction Control**	**12. Tue3-1(SS4)** **Haptics I**
12:20-13:40	**Lunch**		
13:40-15:40	**13. Tue1-2(SS2)** **High-speed and High-precision Servo Control**	**14. Tue2-2(SS7)** **Biped Robots II**	**15. Tue3-2** **Sensing and Control II**
15:40-16:00	**Coffee Break**		
16:00-17:40	**16. Tue1-3** **Advanced Mechatronics II**	**17. Tue2-3(SS9)** **Muscular-mechanism in Robotics**	**18. Tue3-3(SS8)** **Network-Based Control Systems II**
19:00-21:00	**Banquet**		

March 24			
09:20-10:20	Plenary Session 3 (Lecture Hall)		
10:20-10:40	**Coffee Break**		
	Room 1	**Room 2**	**Room 3**
10:40-12:20	**19. Wed1-1(SS2)** **Nano-scale Servo System of Hard Disk Drive**	**20. Wed2-1(SS3)** **Force Sensorless Control**	**21. Wed3-1** **Mobile System Control II**
12:20-13:40	**Lunch**		
13:40-15:20	**22. Wed1-2** **Robust Motion Control**	**23. Wed2-2** **Vibration Control**	**24. Wed3-2(SS4)** **Haptics II**
15:20-15:40	**Coffee Break**		
15:40-17:20	**25. Wed1-3** **Advanced Mechatronics III**	**26. Wed2-3** **Mechatronics Applications II**	**27. Wed3-3** **Manipulator Control**

Monday, 22 March: 09:20-10:20

Lecture Hall **Plenary Session 1**

Kaneko, S., Hokkaido University, Japan

NF-004146 **Robust Matching for Advanced Systems in Real Industry**

Tuesday, 23 March: 09:20-10:20

Lecture Hall **Plenary Session 2**

Swevers, J., Pipeleers, G., Diehl, M., De Schutter, J., Katholieke Universiteit Leuven, Belgium

NF-004057 **Pushing motion control systems to their limits using convex optimization techniques**

Wednesday, 24 March: 09:20-10:20

Lecture Hall **Plenary Session 3**

Yao, B., Purdue University, USA, Jiang, C., Zhejiang University, China

NF-004154 **Advanced Motion Control: from PID to Nonlinear Adaptive Robust Control**

Monday, 22 March: 10:40-12:20

Program

Room1 1. Mon1-1(SS1)

Friction Modeling and Compensation in Precision Motion Control

Chair : Iwasaki, M., Nagoya Institute of Technology, Japan

Co-chair : Oboe, R., Universita di Padova, Italy

NF-002577 **Nonlinear Compensation Method with Bang-bang Compensator for a High Precision Stage using Synchronous Piezoelectric Device Driver**
Tsuruta, K., Sato, K., Sawada, S., Kosaka, K.

NF-000639 **Friction Compensation for Nanopositioning and Nanomeasuring Machines**
Amthor, A. , Zschaeck, S., Ament, C.

NF-001295 **Hybrid Intelligent Controller for High Precision Positioning Mechanism**
Abd-Elhameed, E. H., Iwasaki, M.

NF-002488 **Fast and Precise Positioning by Sequential Adaptive Feedforward Compensation for Disturbance**
Ito, K., Maebashi, W., Yamamoto, M., Iwasaki, M., Matsui, N.

NF-000485 **Analytical Examinations and Compensation for Slow Settling Response in Precise Positioning Based on Rolling Friction Model**
Maeda, Y., Iwasaki, M.

Monday, 22 March: 10:40-12:20

Program

Room2 2. Mon2-1(SS3)

Mechatronics Applications I

Chair : Kawamura, A., Yokohama National University, Japan

Co-chair : Takahashi, S., Kagawa University, Japan

NF-003379 **High Performance Sensor-less Injection Force Control Considering Friction Phenomenon**
Asai, T., Ohishi, K., Urushihara, S., Ohba, Y., Majima, K., Kageyama, K.

NF-001732 **Smooth Touch and Force Control to Unknown Environment without Force Sensor for Industrial Robot**
Shimada, N., Ohishi, K., Kumagai, S., Miyazaki, T.

NF-000833 **Tension Control for Tendon Mechanisms by Compensation of Nonlinear Spring Characteristic Equation Error**
Haiya, K., Komada, S., Hirai, J.

NF-001414 **Passivity-Based Contour Following Control Design with Virtual Plant Disturbance Compensation**
Chen, C. Y., Cheng, M. Y., Wu, J. C., Su, K. H.

NF-002518 **Three-dimensional Position Measurement System with Disturbance Observer**
Matsumoto, T., Takahashi, S.

Monday, 22 March: 10:40-12:20

Program

Room3 3. Mon3-1(SS8)

Network-Based Control Systems I

Chair : Natori, K., Aoyama Gakuin University, Japan

Co-chair : Izuta, G., Yonezawa Women's College, Japan

NF-002976 **A Servo Motor Control with Sampling Jitters**
Kobayashi, Y., Kimura, T., Fujioka, H.

NF-002895 **Model Based Networked Control for Time-varying Delay and Modeling Error**
Uchimura, Y., Shimano, H.

NF-002186 **Data Transmission Using Priority Queue for Multi-DOF Haptic Communication**
Yashiro, D., Yakoh, T., Ohnishi, K.

NF-003158 **Effective Data Sharing System for Fault Tolerant Structural Health Monitoring System**
Matsushiba, Y., Nishi, H.

NF-001546 **Contouring Accuracy Improvement of a Dual-Axis Micro-positioning Stage Powered by Piezoelectric Actuator**
Wen, C. M., Cheng, M. Y., Su, K. H.

Monday, 22 March: 13:40-15:40

Program

Room1 4. Mon1-2(SS1)

Modeling and Compensation for Nonlinearities in Motion Control Applications

Chair : Sasaki, T., University of Tokyo, Japan

Co-chair : Shen, S. C., National Cheng Kung University, Taiwan

NF-004022 **Servo Control Design for Electronic Throttle Valve with Nonlinear Spring Effect**
Chen, C. H., Tsai, H. L., Lin, Y. S.

NF-001104 **Iterative optimization of the filling phase of wet clutches**
Depraetere, B., Pinte, G., Swevers, J.

NF-002291 **Modeling and Position Control of Mobile Robot**
Padhy, P. K., Sasaki, T., Nakamura, S., Hashimoto, H.

NF-001368 **A New Calibration Method for MEMS Inertial Sensor Module**
Shen, S. C., Chen, C. J., Huang, H. J.

NF-002658 **Robust Position Servo System for Industrial Robots based on Estimated Load Information**
Urushihara, S., Ohishi, K., Miyazak, T.

NF-003034 **Modeling, identification and validation of an Electric Vehicle for model-based control design**
Zendri, F., Antonello, R., Biral, F., Fujimoto, H.

Monday, 22 March: 13:40-15:40

Program

Room2 5. Mon2-2(SS7)

Biped Robots I

Chair : Fujimoto, Y., Yokohama National University, Japan

Co-chair : Yubai, K., Mie University, Japan

NF-003182 **Lateral Sway Motion Generation for Biped Robots Using Virtual Supporting Point**
Waki, N., Matsumoto, K.,Kawamura, A.

NF-001309 **Trajectory Planning and Control for Biped Robot with Toe and Heel Joints**
Sato, T., Sakaino, S., Ohnishi, K.

NF-001392 **The Direction Control of a Biped Robot Using Gyro Sensor Feedback**
Matsumoto, K., Kawamura, A.

NF-001554 **Visual Walking Direction Control by Regulating Torsional Deflection for Biped Robot**
Oda, N., Ito, M.

NF-003123 **Landing Trajectory Generation for Bipedal Jumping Motion**
Takaoka, Y., Heerden,K.V., Kawamura, A.

Monday, 22 March: 13:40-15:40

Program

Room3 6. Mon3-2(SS5)

Image Processing

Chair : Mitsukura, Y., Tokyo University of Agriculture and Technology, Japan

Co-chair : Takimoto, H., Okayama Prefectural University, Japan

NF-001457 **Vision Based Obstacle Avoidance and Target Tracking for Autonomous Mobile Robots**
Yamada, M., Lin, C. H., Cheng, M. Y.

NF-000612 **Invisible Calibration Pattern based on Human Visual Perception**
Takimoto, H., Yoshimori, S., Mitsukura, Y., Fukumi, M.

NF-001112 **Robot Vision Network based on Ceiling Map Sharing**
Fukutani, Y., Takahashi, T., Iwahashi, M., Kimura, T., Salbiah, S. S., Mokhtar, N. B.

NF-000957 **A Proposal of Feature Extraction for Impression Analysis**
Yoshimori, S., Takimoto, H., Mitsukura, Y., Fukumi, M.

NF-001929 **Facial Expression Estimation Using Simplified Head Model Based on Particle Filtering**
Takahashi, K., Fukai, H., Mitsukura, Y.

NF-003301 **Age and Gender Estimation by using Facial Image**
Fukai, H., Takimoto, H., Mitsukura, Y., Fukumi, M.

Monday, 22 March: 16:00-18:00

Program

Room1 7. Mon1-3

Intelligent Motor Drive

Chair : Itoh, J., Nagaoka University of Technology, Japan

Co-chair : Miyazaki, T., Nagaoka National College of Technology, Japan

NF-000361 **A Motor Speed Control System Using a Hybrid of Dual-Loop PLL and Feed-Forward**
Machida, H., Kambara, M., Tanaka, K., Kobayashi, F.

NF-000558 **FPGA-Realization of a Motion Control IC for X-Y Table with Adaptive Fuzzy Control**
Kung, Y. S., Li, S. W.

NF-000825 **Fuzzy control of oceanic structure by Lyapunov method**
Chen, C. Y., Yeh, K., Chen, C. W.

NF-001147 **Downsized and High Efficient Direct Power Converters for High-power Servo Application**
Itoh, J., Hinata, T.

NF-001767 **A Design Method of Full-Order Extended Electromotive Force Observer for Sensorless Control of IPMSM**
Tomita, M., Hasegawa, M., Matsui, K.

Monday, 22 March: 16:00-18:00

Program

Room2 8. Mon2-3(SS3)

Mobile System Control I

Chair : Komada, S., Mie University, Japan

Co-chair : Katsura, S., Keio University, Japan

NF-003913 **Visual Tracking Control to Fast Moving Target for Stereo Vision Robot**
Shibata, M., Sekita, T., Eto, H., Ito, M.

NF-001562 **Interactive Control against Obstacle for Power Assisted Wheelchair by Vision-based Reaction Force Observer**
Oda, N., Mabuchi, S., Aizawa, N.

NF-003433 **Simplified Haptic Walking System Based on Bilateral Control**
Okura, T., Katsura, S.

NF-002631 **Real-Time Distribution Control of Torque Reference of Commuter Train for Fine Re-adhesion Contol**
Imai, K., Ohishi, K., Sano, T., Makishima, S., Yasukawa, S.

NF-001007 **Direct Tilt Angle Control on Inverted Pendulum Mobile Robots**
Shimizu, Y., Shimada, A.

Monday, 22 March: 16:00-18:00

Program

Room3 9. Mon3-3

Sensing and Control I

Chair : Zanma, T., Mie University, Japan

Co-chair : Natori, K., Aoyama Gakuin University, Japan

NF-004014 **Visual Tracking of Hand-eye Robot for Moving Target Object with Multiple Feature Points**
Ito, M., Shibata, M.

NF-002429 **Classification and Analysis of 2-color Impression Focusing on Individual Differences**
Sato, K., Mitsukura, Y.

NF-000655 **Incremental Closed-Form Solution to Globally Consistent 2D Range Scan Mapping with Two-Step Pose Estimation**
Martinez, J. L., Morales, J., Mandow, A., Garcia-Cerezo, A.

NF-002534 **Mobile robot control based on information of the scanning laser range sensor**
Nagahara, D., Takahashi, S.

NF-002356 **Shupe Effect Compensation of Temperature Controlled Fiber Optical Gyoscope**
Kato, H., Saito, H., Sakai, S.

Tuesday, 23 March: 10:40-12:20

Program

Room1 10. Tue1-1

Advanced Mechatronics I

Chair : Shimada, A., Shibaura Institute of Technology, Japan

Co-chair : Fujimoto, H., Yokohama National University, Japan

NF-003786 **Path Tracking of an Unicycle Robot with a Wide-Type Wheel aimed for Navigation**
Okumura, J., Takei, T., Tsubouchi, T.

NF-001503 **Slip Ratio Estimation and Regenerative Brake Control without Detection of Vehicle Velocity and Acceleration for Electric Vehicle at Urgent Brake-turning**
Suzuki, T., Fujimoto, H.

NF-001074 **Rupture Detection for Exenteration of Tissues Using Two-DOF Haptic Surgical Forceps Robot**
Kasahara, Y., Kitamura, K., Ohnishi, K., Morikawa, Y., Shimojima, N.

NF-002496 **Force Sensor-Less Power Assist Control for Low Friction Systems**
Salvucci, V., Oh, S., Hori, Y.

NF-003115 **Steering DTC Algorithm for IPMSM Used in Electrical Vehicle (EV)- with Fast Response and Minimum Torque Ripple**
Adam, A. A., Gulez, K., Aliskan,I., Altun,Y., Guclu,R., Metin,M.

Tuesday, 23 March: 10:40-12:20

Program

Room2 11. Tue2-1

Force Interaction Control

Chair : Biral, F., University of Trento, Italy

Co-chair : Takei, T., Advanced Industrial Science and Technology (AIST) Japan, Japan

NF-003689 **Novel Robot Arm with Bi-articular Driving System Using a Planetary Gear System and Disturbance Observer**
Kimura, Y., Oh, S., Hori, Y.

NF-003239 **Development of Intelligent Power Wheelchair Assisting for People on Daily Life using Motion Recognition**
Sekine, N., Nakamura, A., Fujimoto, Y., Yamaguchi, T.

NF-000566 **A Reproduction Method of Human Motion Based on Integrated Information for Haptic Skill Education**
Kuwahara, H., Tanaka, H., Suzuki, Y., Ohnishi, K.

NF-001023 **Modeling of the interaction force between the instrument and the trocar in minimally invasive surgery**
Verspecht, J., Delwiche, T., Buttafuoco, A., Catoire, L., Torfs, S., Kinnaert, M.

NF-003417 **Bilateral Control Based on Human Model for Haptic Communication**
Tsunashima, N., Katsura, S.

Tuesday, 23 March: 10:40-12:20

Program

Room3 12. Tue3-1(SS4)

Haptics I

Chair : Shimono, T., Yokohama National University, Japan

Co-chair : Kubo, R., Keio University, Japan

NF-001589 **Speed Control and Sensorless Force Control with Magnetic Gear**
Komiyama, H., Uchimura, Y.

NF-004006 **Torque Sensor-less Tactile Control of Electrorheological Passive Actuators**
Tanaka, H., Kakinuma, Y., Katsura, S., Aoyama, T.

NF-000523 **Robotic Finger with Coupled Joints: a Prototype and Its Inverse Kinematics**
Godler, I., Hashiguchi, K., Sonoda, T.

NF-003255 **Equivalent Mass Matrix based Bilateral Control for Multi-Degrees-of-Freedom Systems**
Tai, H., Murakami, T.

NF-000582 **Stiffness Modeling Across Transition Temperatures in Virtual Environments by B-Spline Interpolation**
Mitsantisuk, C., Ohishi, K., Urushihara, S., Katsura, S.

Tuesday, 23 March: 13:40-15:40

Program

Room1 13. Tue1-2(SS2)

High-speed and High-precision Servo Control

Chair : Swevers, J., Katholieke Universiteit Leuven, Belgium

Co-chair : Ishikawa, J., Tokyo Denki University, Japan

NF-000663 **Experimental validation of Time Optimal MPC on a linear drive system**
Van den Broeck, L., Diehl, M., Swevers, J.

NF-000949 **Compensation for Synchronous Component of Angular Transmission Errors in Harmonic Drive Gearings**
Yamamoto, M., Iwasaki, M., Kainuma, M., Okitsu, Y., Kato, Y., Sasaki, K., Yajima, T.

NF-000175 **Design Fabrication and Control of 4-DOF High-Precision Stage**
Sakata, K., Fujimoto, H., Hara, A., Ohtomo, T., Saiki, K.

NF-003409 **Robust Tracking Control based on Triple Compensation Loop for High Speed Optical Disk**
Nabata, Y., Kamigaki, Y., Ohishi, K., Miyazaki, T., Koide, D., Takano, Y., Tokumaru, H.

NF-001015 **Zero Phase Error Tracking Control System with Multi Harmonics Disturbance Suppression Loop**
Kamigaki, Y., Ohishi, K., Nabata, Y., Miyazaki, T., Koide, D., Takano, Y., Tokumaru, H.

NF-000019 **A Case Study for Adaptive Robust Precision Motion Control of Systems Preceded by Unknown Dead-zones with Comparative Experiments**
Hu, C., Yao, B., Wang, Q.

Tuesday, 23 March: 13:40-15:40

Program

Room2 14. Tue2-2(SS7)

Biped Robots II

Chair : Shibata, M., Seikei University, Japan

Co-chair : Fujimoto, Y., Yokohama National University, Japan

NF-003891 **On a High-Backdrivable Direct-drive Actuator for Musculoskeletal Bipedal Robots**
Fujimoto, Y., Wakayama, Y., Omori, H., Smadi, I. A.

NF-002844 **Center of Mass based Inverse Kinematics Algorithm for Bipedal Robot Motion on Inclined Surfaces**
Ali, F., Ugurlu, B., Kawamura, A.

NF-001902 **3DZMP-based control of a Humanoid Robot with Reaction Forces at 3-Dimensional Contact Points**
Inomata, K., Uchimura, Y.

NF-002836 **Energy and Torque Efficient ZMP-based Bipedal Walking with Varying Center of Mass Height**
Amran, A. C., Ugurlu, B., Kawamura, A.

NF-001139 **Biped Walking Pattern Generation by Using Preview Control with Virtual Plane Method**
Shimmyo, S., Sato, T., Ohnishi, K.

NF-001627 **Principle analysis and simulation for biomimetic biped walking**
Luo, X., Chen, Y., Jia, F., Zhu, C.

Tuesday, 23 March: 13:40-15:40

Program

Room3 15. Tue3-2

Sensing and Control II

Chair : Godler, I., University of Kitakyushu, Japan

Co-chair : Oboe, R., Universita di Padova, Italy

NF-002526 **Study on Self-Sensing Electrostatic Suspension Using a Variable Capacitor**
Kato, T., Ishino, Y., Takasaki, M., Mizuno T.

NF-001678 **Identification and Validation of a Fractional Order Dynamic Model for a Piezoelectric Tactile Sensor**
Cattin, D., Oboe, R., Dahiya, R. S., Valle, M.

NF-003565 **Motion Index/Search System Based on Real-World Haptics**
Yokokura, Y., Katsura, S.

NF-003263 **A Kinematical Motion Controller for Nonholonomic Wheeled Mobile Robots**
Amoozgar, M. H., Alipour, K.

Tuesday, 23 March: 16:00-17:40

Program

Room1 16. Tue1-3

Advanced Mechatronics II

Chair : Shimada, A., Shibaura Institute of Technology, Japan

Co-chair : Mandow, A., Universidad de Málaga, Spain

NF-003794 **Robust Bank Angle Estimation for Rolling Stability Control on Electric Vehicle**
Kawashima, K., Uchida, T., Oh, S., Hori, Y.

NF-002453 **Optimal tracking control of two-wheeled mobile robots based on model predictive control**
Akiba, S., Zanma, T., Ishida, M.

NF-000426 **Pneumatic Servo System controlled by Backstepping Sliding Mode design**
Lu, C. H., Hwang, Y. R., Shen, Y. T.

NF-003751 **Stabilized Motion of a Small Sized Bike Robot only by Steering Control**
Takei, T., Tsuruta, M., Okumura, J., Nakabayashi, T., Tsubouchi, T.

NF-003506 **A Visual-Feedback Juggler With Servo Drives**
Burget, P., Mezera, P.

Tuesday, 23 March: 16:00-17:40

Program

Room2 17. Tue2-3(SS9)

Muscular-mechanism in Robotics

Chair : Oh S., University of Tokyo, Japan

Co-chair : Tsuji, T., Saitama University, Japan

NF-001899 **On Independent Position/Gap Control of a Spiral Motor**
Smadi, I. A. , Omori, H., Fujimoto, Y.

NF-000892 **Development and Verification of Tendon-driven Rotary Actuator for Haptics with Flexible Actuators and a PE Line**
Suzuki, Y., Kuwahara, H., Tanaka, H., Ohnishi, K.

NF-000868 **The Rigidity of the Bi-articular Robotic Arm with a Planetary Gear**
Umemura, A., Saito, Y., Haneyoshi, T.

NF-002143 **A Model of Antagonistic Triarticular Muscle Mechanism for Lancelet Robot**
Tsuji, T.

NF-002828 **Muscular Viscoelasticity Design and Evaluation in Feed-forward Position Control of Robot Arm based on Animal Musculoskeletal Model**
Yoshida, K., Oh, S., Hori, Y.

Tuesday, 23 March: 16:00-17:40

Program

Room3 18. Tue3-3(SS8)

Network-Based Control Systems II

Chair : Uchimura, Y., Shibaura Institute of Technology, Japan

Co-chair : Nishi, H., Keio University, Japan

NF-001619 **Design of Networked Control Systems on the Basis of Stability and Performance Specifications**
Izuta, G.

NF-003328 **A Simplified Structure for Robustness Enhancement of Time-Delay Systems**
Natori, K., Ohnishi, K

NF-003514 **Development of a haptic teleoperation system for remote motor and functional evaluation of hand in patients with neurological impairments**
Oboe, R. , Daud, O. A., Masiero, S., Oscari, F., Rosati, G.

NF-000981 **Performance Conditioning of Time Delayed Bilateral Teleoperation System by Scaling Down Compensation Value of Communication Disturbance Observer**
Suzuki, A., Ohnishi, K.

NF-002364 **Haptic Broadcasting System Based on Environmental Impedance Transmission**
Kitamura, K., Yashiro, D., Ohnishi, K.

Wednesday, 24 March: 10:40-12:20

Program

Room1 19. Wed1-1(SS2)

Nano-scale Servo System of Hard Disk Drive

Chair : Messner, W. C., Carnegie Mellon University, USA

Co-chair : Fujimoto, H., Yokohama National University, Japan

NF-003905 **Final-State Control Using a Time Symmetrical Polynomial Input**
Hirata, M., Ueno, F.

NF-000604 **Optimization of Head-Positioning Control in a Hard Disk Drive Using the RBode Plot**
Atsumi, T., Messner, W. C.

NF-001406 **Comparison of the control performance for the following control system in HDDs**
Kawafuku, M., Takamori, J., Iwasaki, M., Hirai, H.

NF-001473 **Short-Span Seeking Control of Hard Disk Drive Based on Integral Type Learning PTC**
Endo, H., Fujimoto, H.

NF-002585 **Run-Out Oriented Controller Design for Nanoscale Servo Systems of Hard Disk Drives**
Ishikawa, J.

Wednesday, 24 March: 10:40-12:20

Program

Room2 20. Wed2-1(SS3)

Force Sensorless Control

Chair : Sabanovic, A., Sabanci University, Turkey

Co-chair : Oda, N., Chitose Institute of Science and Technology, Japan

NF-001651 **A Novel Motion Equation for General Task Description**
Sakaino, S., Sato, T., Ohnishi, K.

NF-002275 **Power Assist Control of Electric Wheelchair Using Equivalent Jerk Disturbance under Slope Environment**
Nomura, S., Murakami, T.

NF-000035 **Action-Reaction Based Motion and Vibration Control of Multi-degree-of Freedom Flexible Systems**
Khalil, I. S. M., Sabanovic, A.

NF-001856 **Workspace Based Force Sensorless Bilateral Control with Multi-Degree-of-Freedom Motion Systems**
Lasnier, A., Murakami, T.

NF-003611 **A Support Method for Haptic Skill Acquisition Using Graph Theory**
Watanabe, T., Katsura, S.

Wednesday, 24 March: 10:40-12:20

Program

Room3 21. Wed3-1

Mobile System Control II

Chair : Arai, T., Osaka University, Japan

Co-chair : Ishak, D., Universiti Sains Malaysia, Malaysia

NF-001252 **A Method of Adapting Motion to Depressed Environment for Biped Robot**
Mikami, K., Ohnishi, K.

NF-000647 **Rotation Control of Polygonal Prism by Multi-Legged Robot**
Takeo, G., Takubo, T., Ohara, K., Mae, Y., Arai, T.

NF-001333 **Stride and Walking-Cycle Online Changing for Biped Robot in Frontal Plane**
Nakazato, M., Ohnishi, K.

NF-001821 **Target Tracking Control of Mobile Vehicle System Based on Motion Vector Method**
Chen, T. C., Su, Y. T. , Ren, T. J., Chen, C. J.

NF-000183 **Electrically Actuated Thrusters for Autonomous Underwater Vehicle**
Ishak, D., Manap, N. A. A., Ahmad, M. S., Arshad, M. R.

Room1 **22. Wed1-2**

Robust Motion Control

Chair : Miyazaki, T., Nagaoka National College of Technology, Japan

Co-chair : Zhang, D., PKU-HKUST Shenzhen-Hongkong Institution, China

NF-003018 **High Performance Robot Motion Control Based on Zero-Phase Notch Filter for Industrial Robot**
Kumagai, S., Ohishi, K., Shimada, N., Miyazaki, T.

NF-001082 **Advanced Contouring Error Compensation in High Performance Motion Control Systems**
Zhang, D., Li, Z., Cong, S., Wu, H.

NF-001384 **Correlation-based Direct Tuning of 2DOF Controller by Least Squares**
Usami, H., Yubai, K., Hirai, J.

NF-003336 **L2 Stability Analysis of Four Channel Teleoperation and Experiments under Varying Time Delay**
Tumerdem, U., Ohnishi, K.

NF-003778 **Self-tuning Control of both Current Sensor Offset and Electrical Parameter Variations for PM motor**
Uenaka, Y., Sazawa, M., Ohishi, K.

Wednesday, 24 March: 13:40-15:20 Program

Room2 **23. Wed2-2**

Vibration Control

Chair : Kobayashi, Y., Nagaoka University of Technology, Japan

Co-chair : Iwasaki, M., Nagoya Institute of Technology, Japan

NF-003441 **Vibration Suppression Control of 2-Mass Resonant System for Haptic Tele-Operation**
Yorozu, S., Katsura, S.

NF-003107 **A 3-DOF Modular Vibration Isolation System Using Zero-Power Magnetic Suspension with Adjustable Negative Stiffness**
Hoque, M. E., Mizuno, T., Ishino, Y., Takasaki, M.

NF-002313 **Vibration Suppression Effect of Translational Motion Control for Asymmetric Flexible Satellite**
Nakamura, T., Bando, N., Sakai, S., Saito, H.

NF-000574 **Reaction Force Compensation With Frequency Identifier in Shaking Table Systems**
Seki, K., Iwasaki, M., Hirai, H.

NF-003921 **Anti-Sway Crane Control Based on Dual State Observer with Sensor-Delay Correction**
Sano, H., Ohishi, K., Kaneko, T., Mine, H.

Wednesday, 24 March: 13:40-15:20 Program

Room3 **24. Wed3-2(SS4)**

Haptics II

Chair : Katsura, S., Keio University, Japan

Co-chair : Kakinuma, Y., Keio University, Japan

NF-001813 **A General Framework for a Rehabilitative Oriented Haptic Interface**
Daud, O. A., Biral, F., Oboe, R., Piron, L.

NF-002135 **A Simplified Whole-Body Haptic Sensing System with Multiple Supporting Points**
Hanyu, R., Tsuji, T., Abe, S.

NF-001155 **Bilateral Control with Different Inertia Based on Modal Decomposition**
Motoi, N., Kubo, R., Shimono, T., Ohnishi, K.

NF-001759 **Realization of Bilateral Haptic Communication between Different DOF Systems based on Clarke Transformation**
Shimono, T., Kawamura, A.

NF-003247 **Transparency and System Connection for Heterogeneous Haptic Network Systems**
Kubo, R., Motoi, N., Ohnishi, K.

Wednesday, 24 March: 15:40-17:20

Program

Room1 25. Wed1-3

Advanced Mechatronics III

Chair : Kawafuku, M., Nagoya Institute of Technology, Japan

Co-chair : Takahashi, S., Kagawa University, Japan

NF-004049 **Motion Control of Dynamically Balanced Two-Wheeled Mobile Manipulator through CoG Manipulation**
Acar, C., Murakami, T.

NF-001686 **Estimation of Environmental Model with Nonlinear Stiffness**
Sato, M., Ohnishi, K.

NF-001511 **Yaw-rate Control for Electric Vehicle with Active Front/Rear Steering and Driving/Braking Force Distribution of Rear Wheels**
Ando, N., Fujimoto, H.

NF-002305 **A Realization of Wheelchair Pushing Operation Considering High Tracking Performance and Ride Quality Improvement by Mobile Manipulator**
Fujimoto, Y., Murakami, T.

NF-001481 **Slip Ratio Contorol of Electric Vehicle with Single-rate PWM Considering Driving Force**
Yoshimura, M., Fujimoto, H.

Wednesday, 24 March: 15:40-17:20

Program

Room2 26. Wed2-3

Mechatronics Applications II

Chair : Yuta, S., University of Tsukuba, Japan

Co-chair : Uchimura, Y., Shibaura Institute of Technology, Japan

NF-003654 **Bilateral Control Considering Singularity Based on Observation of Torque Error**
Nagase, K., Katsura, S.

NF-002348 **The Classification System with the Evolutionary Computation**
Tomita,Y., Suzuki, S., Fukai, H., Khosla, R., Mitsukura, Y.

NF-003387 **Lossy Data Compression Using FDCT for Haptic Communication**
Tanaka, H., Ohnishi, K.

NF-003573 **Human Support System Using Haptic Cell**
Yamanouchi, W., Katsura, S.

NF-000434 **Efficient Feedforward Current Control Method of Blushless DC Motor By Using Non-Complementary Switching in Driver Circuit**
Watanabe, A., Yuta, S.

Wednesday, 24 March: 15:40-17:20

Program

Room3 27. Wed3-3

Manipulator Control

Chair : Koseki, T., The University of Tokyo, Japan

Co-chair : Murakami, T., Keio University, Japan

NF-000914 **A Joint Angle Sensorless Grasping Control on Two-Fingered Robot Hands**
Sonoda, K., Shimada, A.

NF-000108 **Dynamic Modeling and Robust Control of a Parallel Robot**
Deng, W., Lee, H. J., Lee, J. W.

NF-003069 **Control of a Straight Line Motion for a Two-Link Robot Arm Using Coordinate Transform of Bi-articular Simultaneous Drive**
Fukusho, H., Koseki, T., Sugimoto, T.

NF-000418 **Self-Sustaining Control of Two-Wheel Mobile Manipulator using Sliding Mode Control**
Abeygunawardhana, P.K.W., Defoort, M., Murakami, T.

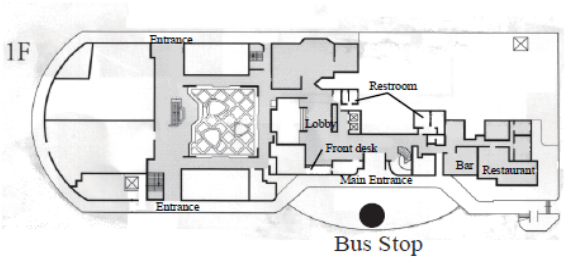
NF-000701 **Theoretical Study and Kinematic Simulation of working Performance for Press based on Non-circularBelt Transmission**
Jia, F., Zheng, E., Wang, S., Jiang, S., Chen, H.

Access information

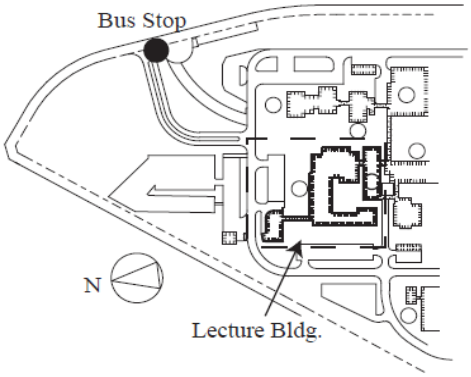
By complimentary shuttle service

	March. 22	March. 23	March. 24
Hotel New Otani ↓ Nagaoka University of Technology	08:00 08:10		
Nagaoka University of Technology ↓ Hotel New Otani	18:20 18:40	18:00 18:20	17:40 18:00

Hotel New Otani Nagaoka



Nagaoka University of Technology

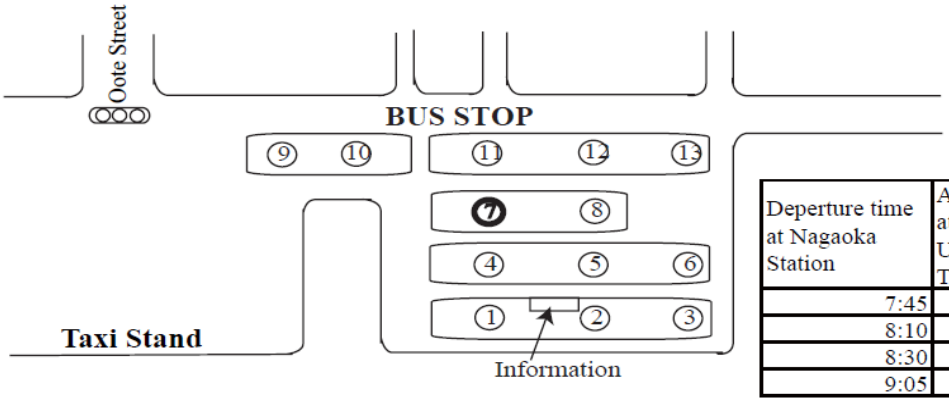


By taxi

By taxi from Nagaoka Station : about 20 minutes (8.5km) and fare is about 2500 JPY.

By public bus

By bus from Nagaoka Station : Take Gidaimae bus line at bus platform No. 7.
Time required is about 30 minutes and fare is 310 JPY. Get off the bus at "Gidaimae".

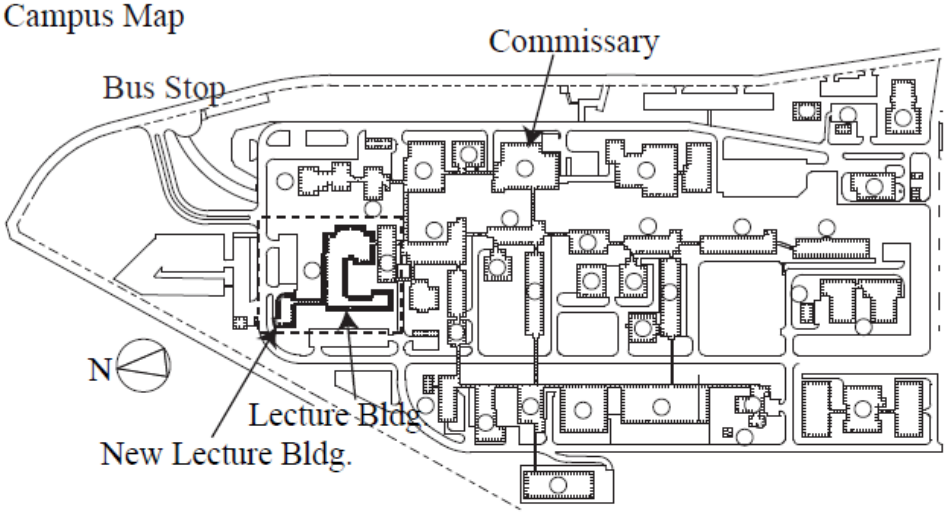


Deperture time at Nagaoka Station	Arrival time at Nagaoka University of Technology
7:45	8:13
8:10	8:38
8:30	8:58
9:05	9:35

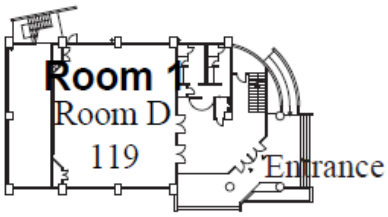
Nagaoka Station's Shopping and Restaurant complex:CoCoLo

Nagaoka Station(Oote Exit)

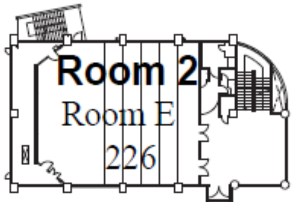
○ Campus Map



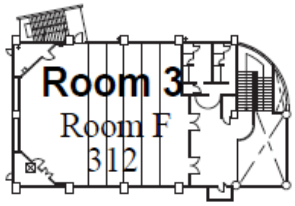
○ Floor Map



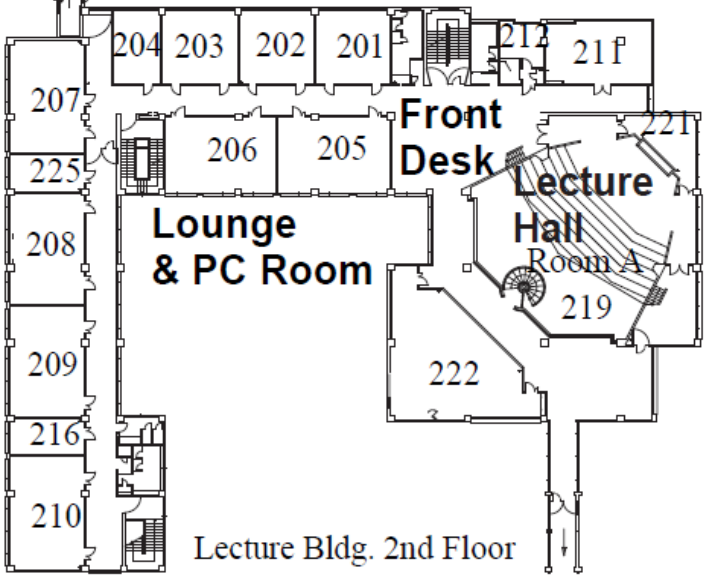
New Lecture Bldg. 1st Floor



New Lecture Bldg. 2nd Floor



New Lecture Bldg. 3rd Floor



Lecture Bldg. 2nd Floor