

|         | Authors/Presenters       | Faculty                         | University                      | Title                                                                                                                                         | Excellence in<br>Microsystems<br>Fabrication | Award for<br>Excellence in<br>Microsystems<br>CAD Tools and<br>Design<br>Methodology | Brian L Barge<br>Microsystems<br>Integration | Equipment Provided by<br>Presenter                                                                                                                               | CAD Tools                  |
|---------|--------------------------|---------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Column1 | Column2                  | Column3                         | Column4                         | Column5                                                                                                                                       | Column52                                     | Column6                                                                              | Column7                                      |                                                                                                                                                                  |                            |
| 1       | Christopher Elash        | Li Chen                         | University of Saskatchewan      | Design and Testing of a Radiation-Tolerant RISC-V Microcontroller                                                                             |                                              | 1                                                                                    |                                              | 120V AC plug                                                                                                                                                     |                            |
| 4       | Milad Seifnejad Haghighi | Behraad Bahreyni                | Simon Fraser University         | A Wafer-Level Dicing-Free Process with Direct PCB Mounting for MEMS Sensors                                                                   | 1                                            |                                                                                      |                                              |                                                                                                                                                                  |                            |
| 5       | Housseem Eddin Fehri     | Marie-Josée Gour                | Université de Sherbrooke        | Development of Deep Cryogenic TSVs for 3D Integration of Superconducting Qubits                                                               | 1                                            |                                                                                      |                                              |                                                                                                                                                                  |                            |
| 6       | Peyman Firoozy           | Behraad Bahreyni                | Simon Fraser University         | A Low-Aspect-Ratio Inclined-Beam Design for Near-Zero Stiffness in MEMS Gravimeters                                                           |                                              | 1                                                                                    |                                              |                                                                                                                                                                  |                            |
| 7       | Boris Bam Nges           | Jean-Francois Bousquet          | Dalhousie University            | A Magnetic Induction Sea-Ice Communication Link for CTD Data Collection                                                                       |                                              |                                                                                      | 1                                            | AC mains: 120 V, 60 Hz.<br>Outlets needed: 2 × grounded outlets.<br>Estimated AC draw: Typical 150–200 W, max 350 W (during extended high-power transmit tests). |                            |
| 8       | Farzan Moosavi           | Bilal Farooq                    | Toronto Metropolitan University | Quantum-Efficient Reinforcement Learning Solutions for Last-Mile On-Demand Delivery                                                           |                                              | 1                                                                                    |                                              |                                                                                                                                                                  |                            |
| 10      | Hamid Sadrimanesh        | Frederic Nabki / Yves Blaquière | École de technologie supérieure | On-ceramic Micro-Scale High-Voltage Breakdown MEMS-Based Acoustic Digital Isolator                                                            |                                              | 1                                                                                    |                                              |                                                                                                                                                                  | Running video clip, COMSOL |
| 11      | Ben Cohen                | Sudip Shekhar                   | University of British Columbia  | Empowering Personalized Medicine with Microchip Biosensors For Women's Hormone Monitoring                                                     |                                              |                                                                                      | 1                                            | Small power unit                                                                                                                                                 |                            |
| 12      | Abolfazl Vaheb           | Dan Sameoto                     | University of Alberta           | Durable Spin-Coated Fiberglass-Reinforced PDMS Molds for High-Fidelity Microstructuring of Polyolefins under Extreme Pressure and Temperature | 1                                            |                                                                                      |                                              |                                                                                                                                                                  |                            |

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|----|--------------------------|-----------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 13 | Mustafa Kanchwala        | Roman Genov                 | Univeristy of Toronto          | A Reconfigurable Platform for Fast Prototyping of Implantable ASICs for Closed-Loop Neuromodulation Medical Devices |                                        |                                                                       | 1                                      | 1.Power Supply – Keysight E36312A – Triple Output Programmable DC Power Supply (Heaviest equipment)<br>2.FPGA board #1 and Carrier card + Additional PCBs for the system<br>3.FPGA board #2 and Carrier card + Custom ASIC and its PCB<br>4.Power cords and extension cords<br>5.Some miscellaneous small components and adapters |           |
| 15 | Elham Zohari             | Paul Barclay                | University of Alberta          | Fabrication of Single-Crystal Diamond Optomechanical Cavities via Quasi-Isotropic Plasma Etching                    | 1                                      |                                                                       |                                        |                                                                                                                                                                                                                                                                                                                                   |           |
| 16 | Omid Esmaeeli            | Sudip Shekhar               | University of British Columbia | Isolator-Free Laser Operation Enabled by Chip-Scale Reflections                                                     |                                        |                                                                       | 1                                      | 3 pieces of equipment: 100 W – 300 W one optical spectrum analyzer, one source/measure unit, and one laser control unit                                                                                                                                                                                                           |           |
| 17 | Muhammed Abdelfatah      | Ahmad Hassan                | Polytechnique Montréal         | Automated Analog and Mixed-Signal Circuit Design Using Artificial Intelligence-Guided Simulation-Based Optimization |                                        | 1                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                   | Cadence   |
| 18 | Milad Asgarpour Khansary | Seyed Ali Ghoreishi Madiseh | University of British Columbia | Hybridization of Minerals Drying Operations via Microwave Systems: Experimental and Numerical Feasibility Analysis  |                                        |                                                                       | 1                                      |                                                                                                                                                                                                                                                                                                                                   | COMSOL    |
| 21 | Bahram Jafari Akinabad   | Shahriar Mirabbasi          | University of British Columbia | A Phase-Delay Self-Injection LC Oscillator in 65-nm CMOS for Low Flicker Noise Signal Generation                    | 1                                      |                                                                       |                                        |                                                                                                                                                                                                                                                                                                                                   |           |
| 22 | Samira Mehrabi           | Nazir Kherani               | University of Toronto          | Metasurface-Engineered Light Trapping for Efficient Photoelectrocatalytic Water Splitting                           |                                        | 1                                                                     |                                        |                                                                                                                                                                                                                                                                                                                                   |           |
| 23 | Hao Yang                 | Roman Genov                 | University of Toronto          | Software-Defined Image Sensor with Motion-Adaptive Spatially Varying Exposure Rate                                  |                                        | 1                                                                     |                                        | standard 110 V AC wall outlet or 5 V DC USB-A power input                                                                                                                                                                                                                                                                         |           |

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|----|--------------------------|--------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------|----------------------------------------|---------------------------------|------------------|
| 24 | Ata Khorami              | Sudip Shekhar      | University of British Columbia | Integrated Circuit Generator Engine                                                                                                                              |                                        | 1                                                                          |                                        | Yes                             |                  |
| 25 | Bahareh Shirmohammadi    | Shahriar Mirabbasi | University of British Columbia | A Cubic Spline-Based Scheme for Signal Sampling and Reconstruction for Power-Efficient Data Acquisition                                                          |                                        | 1                                                                          |                                        | Yes                             | Cadence Virtuoso |
| 26 | Hassan Talaeian          | Shahriar Mirabbasi | University of British Columbia | A fully on-chip Frequency Lock Loop (FLL) based chirp generator for FMCW radar applications                                                                      | 1                                      |                                                                            |                                        |                                 |                  |
| 27 | Jonas Welsch             | Edmond Cretu       | University of British Columbia | From MEMS Design to Inline Integration: Polymer CMUTs for Real-Time Monitoring of Ultrasonic Welding in Composites                                               |                                        |                                                                            | 1                                      | Normal plug for laptop          |                  |
| 29 | Dante Prins              | Sudip Shekhar      | University of British Columbia | DFB Laser Stabilization Against On-Chip Parasitic Reflections Using Controlled Feedback from a Silicon Ring Resonator                                            |                                        |                                                                            | 1                                      |                                 |                  |
| 30 | Fatemeh Niknahad         | Mohammad Zarifi    | University of British Columbia | Wireless Real Time Sweat Secretion Monitoring using Waveguide-based Wearable Microfluidic-channel Sensor                                                         |                                        |                                                                            | 1                                      |                                 |                  |
| 32 | Zahra Sarpanah Sourkouhi | Mohammad Zarifi    | University of British Columbia | Paper-Based RFID Antennas Towards Sustainable IOT                                                                                                                | 1                                      |                                                                            |                                        |                                 |                  |
| 33 | Daniel Reddy             | Richard Oleschuk   | Queen's University             | Spot on: A green(er) approach to dried matrix spots for analysis with liquid microjunction – surface sampling probe – mass spectrometry aided by computer vision | 1                                      |                                                                            |                                        |                                 |                  |
| 34 | Syediman Taghavi         | Lukas Chrostowski  | University of British Columbia | DC-to-GHz Modulators in Ferroelectric Nematic Liquid Crystal-on-Si Platforms                                                                                     |                                        |                                                                            | 1                                      |                                 |                  |