

**POROUS SEMICONDUCTORS –  
SCIENCE AND TECHNOLOGY**

**PSST 2020  
PROGRAM**

## PSST 2020 PROGRAM AT A GLANCE

|                                    |             |  |
|------------------------------------|-------------|--|
| <b>SUNDAY</b><br><b>15.03.2020</b> | 16:00-18:30 | INTRODUCTORY SHORT COURSES (TUTORIALS) |
|                                    | 18:30-20:00 | WELCOME PARTY                          |
|                                    | 20:00-22:00 | DINNER                                 |

|                                    |                                    |  |
|------------------------------------|------------------------------------|--|
| <b>MONDAY</b><br><b>16.03.2020</b> | 9:20-11:00                         | Electrochemical Etching and Metal-Assisted Etching 1 |
|                                    | 11:00-11:20                        | COFFEE BREAK   |
|                                    | 11:20-12:40                        | Electrochemical Etching and Metal-Assisted Etching 2 |
|                                    | 12:40-14:00                        | LUNCH  |
|                                    | 14:00-15:20                        | Electrochemical Etching and Metal-Assisted Etching 3 |
|                                    | 15:20-15:40                        | COFFEE BREAK   |
|                                    | 15:40-17:40                        | Micro Photonics and Electronics                      |
|                                    | 17:40-18:00                        | Talk of the Day Voting                               |
|                                    | 18:00-18:40                        | Free Time  |
| 18:40-21:40                        | Poster Session 1 and Dinner Buffet |  |

|                                     |                                    |   |
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| <b>TUESDAY</b><br><b>17.03.2020</b> | 9:00-11:00                         | Novel Preparation Techniques and Structures & Emerging Applications 1 |
|                                     | 11:00-11:20                        | COFFEE BREAK  |
|                                     | 11:20-12:40                        | Novel Preparation Techniques and Structures & Emerging Applications 2 |
|                                     | 12:40-14:00                        | LUNCH   |
|                                     | 14:00-16:00                        | Surface Chemistry and Pore Filling 1                                  |
|                                     | 16:00-16:20                        | COFFEE BREAK  |
|                                     | 16:20-17:40                        | Surface Chemistry and Pore Filling 2                                  |
|                                     | 17:40-18:00                        | Talk of the Day Voting  |
|                                     | 18:00-18:40                        | Free Time   |
| 18:40-21:40                         | Poster Session 2 and Dinner Buffet |   |

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| <b>WEDNESDAY</b><br><b>18.03.2020</b> | 9:00-11:00  | Sensors and Biosensors 1                |
|                                       | 11:00-11:20 | COFFEE BREAK                            |
|                                       | 11:20-13:00 | Sensors and Biosensors 2                |
|                                       | 13:00-13:20 | Talk of the Day Voting                  |
|                                       | 13:20-14:40 | CONFERENCE PHOTO & LUNCH                |
|                                       | 14:40-20:00 | HALF-DAY VISIT TO HISTORIC TOWN OF PISA |
|                                       | 20:00-21:40 | DINNER                                  |

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| <b>THURSDAY<br/>19.03.2020</b> | 9:00-11:00  | Medical Applications, Imaging and Therapy 1                |
|                                | 11:00-11:20 | COFFEE BREAK   |
|                                | 11:20-12:40 | Medical Applications, Imaging and Therapy 2                |
|                                | 12:40-14:00 | LUNCH  |
|                                | 14:00-15:40 | Medical Applications, Imaging and Therapy 3                |
|                                | 15:40-16:00 | COFFEE BREAK   |
|                                | 16:00-17:40 | Energy Storage and Conversion                              |
|                                | 17:40-18:00 | Talk of the Day , Best Poster, and Best Talk of the Voting |
|                                | 18:00-19:00 | Canham Award   |
|                                | 19:00-20:00 | Free Time  |
|                                | 20:00-23:00 | GALA DINNER AND PRIZES                                     |

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| <b>FRIDAY<br/>20.03.2020</b> | 10:00-11:00 | Closing Session, informal discussion, and further plans |
|                              | 11:00-20:00 | OPTIONAL DAY TOUR TO FLORENCE                           |

SUNDAY 15.03.2020

|             |   |
|-------------|---|
|             | <b>INTRODUCTORY SHORT COURSES (TUTORIALS)</b><br><b>Chairing:</b> GIUSEPPE BARILLARO AND MICHAEL SAILOR |
| 16:00-16:30 | <b>(1) FABRICATION OF POROUS SEMICONDUCTORS</b><br>LLUIS MARSAL   |
| 16:30-17:00 | <b>(2) PHOTONIC AND ELETRONIC APPLICATIONS OF POROUS SEMICONDUCTORS</b><br>SHARON WEISS                 |
| 17:00-17:30 | <b>(3) SENSOR APPLICATIONS OF POROUS SEMICONDUCTORS</b><br>ESTER SEGAL                                  |
| 17:30-18:00 | <b>(4) BIOMEDICAL APPLICATIONS OF POROUS SEMICONDUCTORS</b><br>NICO VOELCKER                            |
| 18:00-18:30 | <b>(5) ENERGY APPLICATIONS OF POROUS SEMICONDUCTORS</b><br>LIONEL SANTINACCI                            |
|             |   |
| 18:30-20:00 | <b>WELCOME PARTY at UNA ESPERIENZE HOTEL</b>  |
| 20:00-22:00 | <b>DINNER at UNA ESPERIENZE HOTEL</b>   |

**END of the DAY**

MONDAY 16.03.2020

| Time   | Presentation Number                  | TITLE<br>AUTHORS   |
|--|--------------------------------------|--|
| 09:00-9:20   |                                      | <b>PSST 2020 CONFERENCE OPENING</b><br><b>Chairing:</b> FREDERIQUE CUNIN, GIUSEPPE BARILLARO, THIERRY DJENIZIAN, LLUÍS F. MARSAL, MICHAEL SAILOR AND NICO VOELCKER   |
| <b>Session 01 – Electrochemical and Metal-Assisted Chemical Etching 1</b><br><b>Chairing:</b> L. BOARINO AND K. FUKAMI     |                                      |  |
| 09:20-09:55  | 01-I-01/<br>154                      | <b>STRUCTURAL ENGINEERING OF NANOPOROUS ANODIC ALUMINA FOR PHOTONIC AND SENSING APPLICATIONS</b><br>A. SANTOS ( <i>INVITED</i> )   |
| 10:00-10:15  | 01-O-02/<br>147                      | <b>MESOPOROUS STAMP MATERIALS FOR LARGE-AREA ELECTROCHEMICAL NANOIMPRINTING OF SILICON-BASED WAVEGUIDES</b><br>A. SHARSNIOU, S. NIAUZORAU, J. MARKOVSKI, N. KUBLIK, M. PUCKETT, N. KRUEGER AND B. AZEREDO  |
| 10:20-10:35  | 01-O-03/<br>40                       | <b>ANODIC SYNTHESIS OF HIERARCHICAL SnS/SnO<sub>x</sub> HOLLOW NANOSPHERES AND THEIR APPLICATION FOR HIGH-PERFORMANCE NA-ION BATTERIES</b><br>J. PAN, H. D. BIAN AND Y. Y. LI  |
| 10:40-10:55  | 01-O-04/<br>41                       | <b>INJECTION METAL-ASSISTED CATALYTIC ETCHING (MACE) OF Si POWDER: THE DISCOVERY OF LOW-LOAD MACE AND THE OPTIMIZATION OF HIGH-LOAD MACE</b><br>K. W. KOLASINSKI, K. TAMAROV, J. SWANSON, B. UNGER, A. ERNST, M. AINDOW, V.-P. LEHTO AND J. RIIKONEN |
| 11:00-11:20  | <b>COFFEE BREAK</b>                  |  |
| <b>Session 01 – Electrochemical and Metal-Assisted Chemical Etching 2</b><br><b>Chairing:</b> V. BONDARENKO AND S. BASTIDE |                                      |  |
| 11:20-11:35  | 01-O-05/<br>86                       | <b>ANODIZING OF SILICON CARBIDE WITH IRRADIATION-INDUCED POINT DEFECTS FOR MACROPOROUS FORMATION</b><br>Y. MAEDA, A. MUÑOZ-NOVAL, E. SUZUKI, S. KONDO, A. KITADA, S. SHIKI, M. OHKUBO, S. HAYAKAWA, K. MURASE AND K. FUKAMI                          |
| 11:40-11:55  | 01-O-06/<br>73                       | <b>SPATIOTEMPORAL PATTERN FORMATION IN PLATINUM-ASSISTED CHEMICAL ETCHING OF SILICON AS THE ORIGIN OF HELICAL NANOPOROUS FORMATION</b><br>K. FUKAMI, T. YASUDA, Y. MAEDA, K. MATSUZAKI, Y. OKAZAKI, R. ODA, A. KITADA AND K. MURASE                  |
| 12:00-12:15  | 01-O-07/<br>15                       | <b>ANISOTROPIC ETCHING OF Si(100) IN HF SOLUTIONS CONTAINING IODINE SPECIES</b><br>J. WANG, H. FU, C. HUO, H. ZHAO, S. ZHENG, X. LI, Y. YANG, AND K.-Q. PENG   |
| 12:20-12:35  | 01-O-08/<br>16                       | <b>CHARACTERIZATION OF POROUS STRUCTURES GENERATED BY BIPOLAR ELECTROCHEMICAL ETCHING ON HIGHLY P-DOPED GE(100) 4" – WAFERS</b><br>W. SCHREIBER AND S. JANZ  |
| 12:40-14:00  | <b>LUNCH at UNA ESPERIENZE HOTEL</b> |  |

## Session 01 – Electrochemical and Metal-Assisted Chemical Etching 3

Chairing: K. KOLASINSKI AND Y. LI

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| 14:00-14:15 | 01-O-09/<br>138     | <b>FABRICATION OF MULTIPLE POROUS SILICON ELEMENTS WITH VARYING MORPHOLOGIES USING A SINGLE ANODIZATION STEP</b><br>D. SILVA DE VASCONCELLOS, K. HAJDU, E. IMBERNON, D. BOURRIER AND T. LEICHLE   |
| 14:20-14:35 | 01-O-10/<br>8       | <b>REALIZATION OF HIGH QUALITY NANOPOROUS ANODIC ALUMINA GRADIENT-INDEX FILTERS BY OPTIMAL COMBINATION OF ANODIZATION CONDITIONS</b><br>C. S. LAW, S. Y. LIM, L. LIU, A. ABELL AND A. SANTOS  |
| 14:40-14:55 | 01-O-11/<br>9       | <b>LASER-INDUCED BREAKDOWN SPECTROSCOPY USING POROUS SILICON FOR MICROANALYSIS OF LIQUID SAMPLES</b><br>A. MATSUMOTO, Y. SHIMAZU, H. NAKANO AND S. YAE  |
| 15:00-15:15 | 01-O-12/<br>139     | <b>INVESTIGATION OF H1N1 INFLUENZA VIRUS INTERACTION WITH A POROUS LAYER OF SILICON NANOWIRES FOR SENSING APPLICATIONS</b><br>K.A. GONCHAR, D. V. MOISEEV, I. V. BOZHEV, S. N. AGAFILUSHKINA, M. B. GONGALSKY, N. YU. SAUSHKIN, J. V. SAMSONOVA AND L. A. OSMINKINA |
| 15:20-15:40 | <b>COFFEE BREAK</b> |   |

## Session 02 – Micro Photonics and Electronics

Chairing: A. KEATING AND G. GAUTIER

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| 15:40-16:15 | 02-I-01/<br>47                | <b>ADDITIVE MANUFACTURING OF 3D MICROSCALE GRADIENT REFRACTIVE INDEX POLYMER OPTICAL ELEMENTS AND WAVEGUIDES IN POROUS SILICON AND SILICA</b><br>P. V. BRAUN ( <i>INVITED</i> )   |
| 16:20-16:35 | 02-O-02/<br>117               | <b>NANOIMPRINTING REFRACTIVE INDEX USING MESOPOROUS SILICON SUBSTRATES</b><br>J. C. PEREZ, T. H. TALUKDAR AND J. D. RYCKMAN   |
| 16:40-16:55 | 02-O-03/<br>24                | <b>RESISTIVE AND LUMINESCENCE SWITCHING OF POROUS SILICON LIGHT EMITTING MEMRISTORS</b><br>V. TORRES-COSTA, E. MÄKILÄ AND J. SALONEN  |
| 17:00-17:15 | 02-O-04/<br>152               | <b>RECORD CAPACITANCE DENSITY FROM THREE-DIMENSIONAL SILICON-BASED CAPACITOR: TOWARD EFFECTIVE ON-CHIP ENERGY STORAGE</b><br>L. STRAMBINI, A. PAGHI, S. MARIANI, A. SOOD, J. KALLIOMÄKI, P. JÄRVINEN, F. TOIA, M. SCURATI, M. MORELLI, A. LAMPERTI AND G. BARILLARO |
| 17:20-17:35 | 02-O-05/<br>91                | <b>PLANAR-TYPE TRIAC WITH POROUS SILICON-BASED PERIPHERY STRUCTURE</b><br>S. AUDIERE, Y. BUVAT, T. DEFFORGE, B. MORILLON, E. COLLARD, J. BILLOUE AND G. GAUTIER   |
| 17:40-18:00 | <b>Talk of the day voting</b> |   |

## POSTER Session I and Dinner Buffet

Chairing: G. MULA, V.Y. TIMOSHENKO, F. GEOBALDO, H. SOHN, A. SANTOS, K. PENG, H. BANDARENKA AND S. WEISS

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|-------------|---|
| 18:40-21:40 | 01 – Electrochemical and Metal-Assisted Chemical Etching (19)<br>02 – Novel Preparation Techniques and Structures (12)<br>04 – Micro Photonics and Luminescence (7) |
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|   | 05 – Micro Systems and Electronics (5)<br>07 – Energy Storage and Conversion (5)<br>09 – Emerging Applications (1)   |
| <b>Topic 01 (Posters) – Electrochemical and Metal-Assisted Chemical Etching</b> |  |
| 01-P1-01/<br>29   | <b>STUDY OF SUPERHYDROPHOBICITY OF SILICON NANOWIRES ARRAY FABRICATED BY MACE</b><br>M. K. SAHOO AND P. G. KALE  |
| 01-P1-02/<br>56   | <b>THERMAL CONDUCTIVITY OF POROUS SILICON NANOWIRES OBTAINED BY METAL ASSISTED CHEMICAL ETCHING</b><br>P. FERRANDO-VILLALBA, N. DE LEO, G. G. DALKIRANIS, E. CARA, A. F. LOPEANDIA, L. L. ABAD, R. RURALI, X. CARTOIXÀ, Z. SAGHI, M. JACOB, N. GAMBACORTI, L. BOARINO AND J. RODRÍGUEZ-VIEJO |
| 01-P1-03/<br>28   | <b>EFFECT OF MACE TEMPERATURE ON CURRENT-VOLTAGE (I-V) CHARACTERISTICS OF ETCHED SILICON AND SILICON NANOWIRES ARRAY</b><br>M. K. SAHOO AND P. G. KALE   |
| 01-P1-04/<br>82   | <b>ELECTROCHEMICAL PORE FORMATION IN SEMICONDUCTOR SUBSTRATES: THE FUTURE PATH FOR COST-EFFECTIVE AND HIGH-PERFORMANCE PHOTOVOLTAIC SYSTEMS</b><br>M. R. AZIZIYAN, A. DUPUY, S. SAUZE, S. TASLIMI TALEGHANI, R. ARÈS AND A. BOUCHERIF  |
| 01-P1-05/<br>77   | <b>APPLICATION OF INLINE METHODS FOR FABRICATION AND CHARACTERIZATION OF POROUS SILICON LAYERS</b><br>A. IVANOV AND C. WEISS   |
| 01-P1-06/<br>7  | <b>STRUCTURALLY-COLORED NANOPOROUS ANODIC ALUMINA PHOTONIC CRYSTALS FOR REALLIFE PHOTOCATALYTIC APPLICATIONS</b><br>S. Y. LIM, C. S. LAW, L. LIU, A. D. ABELL AND A. SANTOS  |
| 01-P1-07/<br>43   | <b>EFFECT OF HF CONCENTRATION ON THE HELICAL NANOPORES FORMED BY THE PLATINUM-ASSISTED CHEMICAL ETCHING</b><br>T. YASUDA, Y. MAEDA, Y. OKAZAKI, R. ODA, A. KITADA, K. MURASE AND K. FUKAMI   |
| 01-P1-08/<br>155  | <b>EFFECT OF OXIDATION ON QUASI-OMNIDIRECTIONAL PHOTONIC BAND GAP IN POROUS SILICON BASED DIELECTRIC MIRRORS</b><br>V. CASTILLO-GALLARDO, L. E. PUENTE-DÍAZ, D. ARIZA-FLORES, H. I. PÉREZ-AGUILAR, W. L. MOCHÁN AND V. AGARWAL   |
| 01-P1-09/<br>106  | <b>POROUS SILICON RESEARCH MADE IN BELARUS: EARLY HISTORY AND DEVELOPMENT</b><br>V. BONDARENKO   |
| 01-P1-10/<br>27   | <b>PERFLUORINATED POLYMER@SILICON NANOWIRES AS NANOSTRUCTURE-INITIATOR MASS SPECTROMETRIC SUBSTRATE FOR SALIVA METABLITES DETECTION</b><br>X. JIANG AND J. WU  |
| 01-P1-11/<br>30   | <b>FORMATION MECHANISMS OF SELF-ORGANIZED POROUS SI/SIO<sub>2</sub> STRUCTURES FORMED BY ELECTROCHEMICAL ETCHING OF N-TYPE OF SI</b><br>V. OLGA, G. SERGEY, D. ALEXANDER, V. PAVEL AND S. GENNADY  |
| 01-P1-12/<br>78   | <b>ELECTROCHEMICAL TEXTURING OF DIAMOND WIRE SAWN MULTICRYSTALLINE P-TYPE SILICON SUBSTRATES FOR SOLAR CELLS</b><br>G. JAMMAL, B. STRAUB AND ALEXEY IVANOV   |
| 01-P1-13/<br>127  | <b>SERS-ACTIVE SUBSTRATES FABRICATED BY METAL-ASSISTED CHEMICAL ETCHING OF SILICON</b><br>A. KLIMENKA, V. KHALIAVA, S. TAMULEVICIUS, N. KHINEVICH AND H. BANDARENKA  |
| 01-P1-14/<br>150  | <b>ELECTROCHEMICAL MACROMACHINING OF HOLLOW-CORE SILICA MICRO-BUBBLE ARRAYS ON A SILICON CHIP FOR PERSPECTIVE ULTRA-SENSITIVE OPTICAL SENSING</b>  |

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|   | Z. CHEN, L. STRAMBINI AND G. BARILLARO   |
| 01-P1-15/<br>21   | <b>THE EFFECT OF SILICON CRYSTALLOGRAPHIC ORIENTATION ON POROUS SILICON STRUCTURE AND FORMATION KINETICS</b><br>N. GREVTSOV, V. BONDARENKO AND A. SMIRNOV  |
| 01-P1-16/<br>100  | <b>FABRICATION AND CHARACTERIZATION OF PD NANOPARTICLES ON POROUS SILICON</b><br>A. BURKO, P. ASINSKI, S. ZAVATSKI AND H. BANDARENKA   |
| 01-P1-17/<br>133  | <b>FINDING THE PROCESS WINDOW LIMITATIONS OF THE POROUS SILICON PROCESS</b><br>C. GEMMEL, J. HENSEN, S. KAJARI-SCHRÖDER AND R. BRENDDEL  |
| 01-P1-18/<br>55   | <b>MODELING AND SIMULATION OF ELECTROCHEMICAL ETCHING PROCESS IN SEMICONDUCTORS</b><br>S. TASLIMI TALEGHANI, M. R. AZIZIYAN, D. MACHON AND A. BOUCHERIF  |
| 01-P1-19/<br>52   | <b>TUNING PORE SIZES IN LOW LOAD METAL ASSISTED CATALYTIC ETCHING (LL-MACE) OF Si POWDERS</b><br>K. TAMAROV, R. KIVILUOTO, J. D. SWANSON, B. A. UNGER, A. T. ERNST, M. AINDOW, V.-P. LEHTO, J. RIIKONEN AND K. W. KOLASINSKI |
| <b>Topic 02 (Posters) – Novel Preparation Techniques and Structures</b> |  |
| 02-P1-01/<br>102  | <b>BIOGENIC NANOSTRUCTURED SILICON CARBIDE AS A POTENTIAL MATERIAL FOR THE NEXT GENERATION OF FUSION AND FISSION REACTORS</b><br>O. HALUSKA, J. RIIKONEN, G. MAGNANI AND V.-P. LEHTO   |
| 02-P1-02/<br>61   | <b>SURFACE MODIFICATION OF LUMINESCENT COLLOIDAL SILICON NANOPARTICLES SYNTHESIZED FROM POROUS SILICON</b><br>T. NAKAMURA, J. OTSUBO, K. KUNYOSHI AND N. KOSHIDA   |
| 02-P1-03/<br>93   | <b>PHOTOLUMINESCENCE OF MACROPOROUS SILICON/CARBON NITRIDE COMPOSITE</b><br>E. CHUBENKO, V. GORDYUNIN, A. BAGLOV AND V. BONDARENKO   |
| 02-P1-04/<br>128  | <b>SEMICONDUCTOR QUANTUM DOTS AFTER ANNEALING OF MULTILAYER NANOSTRUCTURES –POSSIBILITY OF PHOTOVOLTAIC APPLICATION</b><br>O. M. SRESELI, M. A. ELISTRATOVA, A. V. ERSHOV, D. A. GRACHEV, V. N. NEVEDOMSKII, N. A. BERT      |
| 02-P1-05/<br>104  | <b>HIGH ASPECT RATIO TIO<sub>2</sub> NANOTUBE LAYERS</b><br>M. ALIJANI, H. SOPHA, M. MOTOLA, S. NG AND J. M. MACAK   |
| 02-P1-06/<br>66   | <b>PREPARATION OF HYDROPHOBIC-OLEOPHILIC MATERIALS BASED ON NANOPOROUS ANODIC ALUMINA</b><br>L. K. ACOSTA, P. FORMENTIN AND L. F. MARSAL   |
| 02-P1-07/<br>68   | <b>ANISOTROPIC ETCHING OF CRYSTALLINE SILICON IN NH<sub>4</sub>F AQUEOUS SOLUTION</b><br>H. ZHAO, J. WANG, H. WANG, H. FU AND K.-Q. PENG   |
| 02-P1-08/<br>129  | <b>TOWARDS THE GROWTH OF DISLOCATION FREE GE ON POROUS PATTERNED SI PILLARS</b><br>A. HEINTZ, M. JELLITE, R. ARVINTE, T. M. DIALLO, A. BARZAGHI, G. ISELLA AND A. BOUCHERIF  |
| 02-P1-09/<br>3  | <b>HYBRID PLASMONIC/PHOTONIC CRYSTALS FOR OPTICAL DETECTION OF BACTERIAL CONTAMINANTS</b><br>G. M. PATERNÒ, L. MOSCARDI, S. DONINI, D. ARIODANTI, I. KRIEGEL, E. PARISINI, G. LANZANI AND F. SCOTOGNELLA                     |
| 02-P1-10/<br>22   | <b>SCALE-UP OF ANODIC TIO<sub>2</sub> NANOTUBE LAYERS</b><br>H. SOPHA, M. MOTOLA, S. NG AND J. M. MACAK  |



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| 02-P1-11/<br>6   | <b>POROUS SILICON BASED ULTRA-BAND INFRARED ANTIREFLECTIVE AND LIGHT ABSORBING COATING</b><br><u>S. KESHAVARZI</u> , A. KOVACS AND U. MESCHEDER   |
| 02-P1-12/<br>46  | <b>FROM POROUS GERMANIUM TO VERTICALLY ALIGNED NANORODS: A NEW APPROACH TO ENABLE HIGH PERFORMANCE ON-CHIP ANODES</b><br>A. DUPUY, M. R. AZIZIYAN, D. MACHON, R. ARES AND A. BOUCHERIF                                |
| <b>Topic 04 (Posters) – Micro Photonics and Luminescence</b> |   |
| 04-P1-01/<br>119   | <b>HIGH FIGURE OF MERIT INTERFEROMETRIC SENSORS: EXCEEDING THE SENSITIVITY OF BULK POROUS SILICON VIA WAVEGUIDE DISPERSION</b><br>T. H. TALUKDAR, I. KRAVCHENKO AND J. D. RYCKMAN                                     |
| 04-P1-02/<br>25  | <b>ACCURATE DETERMINATION OF THE OPTICAL CONSTANTS OF POROUS SILICON FROM SELF-STANDING LAYERS</b><br>R. RAMADAN, <u>V. TORRES-COSTA</u> AND R. J. MARTÍN-PALMA   |
| 04-P1-03/<br>50  | <b>DESIGN OF POROUS SILICON MICRODEVICES WITH SPECIFIC OPTOACOUSTIC RESPONSES</b><br>L. FORZANI, C. G. MENDEZ, R. URTEAGA AND A. E. HUESPE  |
| 04-P1-04/<br>115   | <b>ELECTROLUMINESCENT STRUCTURES BASED ON POROUS GALLIUM PHOSPHIDE AND ALUMINUM DOPED ZINC OXIDE</b><br><u>G. K. MUSSABEK</u> , M. N. KALIMOLDAYEV, S. S. SARSEMBEK, K. K. DIKHANBAYEV AND G. A. AMIRKHANOVA          |
| 04-P1-05/<br>151   | <b>A WIDE BAND INFRARED POROUS SILICON OMNIDIRECTIONAL REFLECTOR</b><br>B. CHAVEZ, J. S. PÉREZ-HUERTA, J. MADRIGAL-MELCHOR, V. AGARWAL AND <u>D. ARIZA-FLORES</u>   |
| 04-P1-06/<br>53  | <b>MORPHOLOGICAL, STOICHIOMETRIC, AND PHOTOPHYSICAL CONTROL OF PEROVSKITES USING POROUS SILICON NANOTUBES</b><br><u>R. GONZALEZ-RODRIGUEZ</u> AND J. L. COFFER  |
| 04-P1-07/<br>153   | <b>LASING FROM POROUS SILICON RESONANT MICROCAVITIES INFILTRATED WITH POLYFLUORENE</b><br>V. ROBBIANO, G. M. PATERNÒ, <u>A. A. LA MATTINA</u> , S. G. MOTTI, G. LANZANI, F. SCOTOGNELLA AND G. BARILLARO              |
| <b>Topic 05 (Posters) – Micro Systems and Electronics</b>    |   |
| 05-P1-01/<br>110   | <b>MESOPOROUS SI SUBSTRATE FOR INTEGRATION OF GAAS SOLAR CELLS ON SI</b><br><u>R. ARVINTE</u> , A. B. POUNGOUE MBEUNMI, M. EL-GAHOUCI, A. JAOUAD, S. FAFARD, R. ARÈS AND A. BOUCHERIF                                 |
| 05-P1-02/<br>84  | <b>OPTIMISING ANNEALING TEMPERATURE OF DIFFERENT METAL CONTACTS ON PASSIVATED POROUS SILICON</b><br><u>P. SHARMA</u> , X. SUN, J. DELL, G. PARISH AND A. KEATING  |
| 05-P1-03/<br>145   | <b>BOOSTING STATIC AND DYNAMIC PERFORMANCES OF INTEGRATED POWER DIODES USING PERIPHERAL NANOSTRUCTURED POROUS SILICON</b><br><u>A. PAGHI</u> , L. STRAMBINI, M. SAMBI, M. MARCHESI, M. MORELLI AND GIUSEPPE BARILLARO |
| 05-P1-04/<br>96  | <b>THERMAL CONDUCTIVITY REDUCTION IN POROUS SILICON BASED MULTILAYERED SYSTEMS</b><br><u>M. ISAEV</u> , P. LISHCHUK, L. CHEPELA, A. BELAROUCI AND D. LACROIX  |
| 05-P1-05/<br>108   | <b>STUDY OF PSEUDO-DIELECTRIC FUNCTIONS OF FILMS AND LAYERS OF SILVER NANOPARTICLES ON SI SUBSTRATE</b><br><u>YU. ZHAROVA</u> , V. TOLMACHEV AND I. NYAPSHAEV   |

| <b>Topic 07 (Posters) – Energy Storage and Conversion</b> |   |
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| 07-P1-01/<br>122  | <b>POROUS GERMANIUM AS ANODE MATERIAL FOR BATTERIES</b><br>A. N. SOSA, I. GONZÁLEZ, A. TREJO AND M. CRUZ-IRISSON  |
| 07-P1-02/<br>131  | <b>ADJUSTABLE POROSITY FOR TUNING MECHANICAL BEHAVIOR OF SILICON MICROCHIP ANODES FOR LI-ION BATTERIES</b><br>S. ABDELOUHAB, V. VANPEENE, M. R. AZIZIYAN, A. DUPUY, S. TASLIMI TALEGHANI, L. ROUÉ, D. MACHON AND A. BOUCHERIF |
| 07-P1-03/<br>105  | <b>UNDERSTANDING THE PASSIVATION IN SILICON-AIR BATTERIES WITH ALKALINE ELECTROLYTES</b><br>R. SCHALINSKI, S. L. SCHWEIZER, AND RALF. B. WEHRSPHON  |
| 07-P1-04/<br>51   | <b>IRON AND NITROGEN CO-DOPED POROUS CARBON NANOSHEETS (Fe,N-PCN): AN EFFICIENT ELECTROCATALYST FOR OXYGEN REDUCTION REACTION</b><br>P. DU, F.-X. MA, F. LYU, K. HE, Z. LI, J. LU AND Y. LI                                   |
| 07-P1-05/<br>107  | <b>THERMOELECTRIC PROPERTIES OF GRAPHENE-MESOPOROUS SEMICONDUCTOR NANOCOMPOSITE</b><br>S. SAUZE, M. R. AZIZIYAN, A. STOLZ, N. SEMMAR, G. KOLHATKAR, A. RUEDIGER, R. ARÈS AND A. BOUCHERIF                                     |
| <b>Topic 09 (Posters) – Emerging Applications</b>         |   |
| 09-P1-01/<br>5  | <b>PIEZOELECTROLYTIC ACTUATION IN POROUS SILICON</b><br>M. BRINKER, G. DITTRICH, C. RICHERT, P. LAKNER, T. KREKELER, T. F. KELLER, N. HUBER AND P. HUBER  |

**END of the DAY**

TUESDAY 17.03.2020

| Time  | Presentation Number                  | TITLE<br>Authors   |
|---|--------------------------------------|--|
| <b>Session 03 – Novel Preparation Techniques and Structures &amp; Emerging Applications 1</b><br><b>Chairing: P. V. BRAUN AND B. AZEREDO</b>      |                                      |  |
| 09:00-09:35   | 03-I-01/<br>146                      | <b>PHOTONICALLY ENCODED SILICONE LENSES FOR SMARTPHONE-BASED MICROSCOPY AND IMAGING</b><br><u>S. MARIANI</u> , V. ROBBIANO, R. IGLIO, A. A. LA MATTINA, P. NADIMI, J. WANG, B. KIM, T. KUMERIA, M. J. SAILOR AND G. BARILLARO ( <i>INVITED</i> ) |
| 09:40-9:55  | 03-O-02/<br>116                      | <b>USING POROUS SILICON TEMPLATE PROPERTIES TO DIRECT LEAD HALIDE PEROVSKITE PHOTOPHYSICS</b><br><u>V. C. P. DA COSTA</u> , R. GONZALEZ-RODRIGUEZ, G. DELPORT, K. FROHNA, S. D. STRANKS, L. T. CANHAM AND J. L. COFFER                           |
| 10:00-10:15   | 03-O-03/<br>23                       | <b>STRUCTURAL ENGINEERING OF MAGNETIC ALUMINA NANOTUBES</b><br><u>J. T. DOMAGALSKI</u> , E. XIFRE-PEREZ, J. FERRE-BORULL AND L. F. MARSAL  |
| 10:20-10:35   | 03-O-04/<br>88                       | <b>MORPHOLOGICAL VARIATIONS OF ANODIC TiO<sub>2</sub> NANOTUBE LAYERS</b><br><u>J. M. MACAK</u> , M. MOTOLA, D. BEKETOVA AND H. SOPHA  |
| 10:40-10:55   | 03-O-05/<br>37                       | <b>DEFECTIVE TiO<sub>2</sub> NANOTUBE ARRAYS FOR ENHANCED PHOTOCATALYTIC AND PHOTOELECTROCHEMICAL APPLICATIONS</b><br><u>H. LI</u> , Z. LI, H. BIAN AND Y. Y LI  |
| 11:00-11:20   | <b>COFFEE BREAK</b>                  |  |
| <b>Session 03 – Novel Preparation Techniques and Structures &amp; Emerging Applications 2</b><br><b>Chairing: L. STRAMBINI AND R. BOUKHERROUB</b> |                                      |  |
| 11:20-11:35   | 03-O-06/<br>89                       | <b>MULTILAYER POROUS SILICON-BASED MICROMACHINED CAVITY FOR THERMAL IMAGING APPLICATIONS</b><br><u>Y. AFANDI</u> , G. PARISH AND A. KEATING  |
| 11:40-11:55   | 03-O-07/<br>132                      | <b>HIERARCHICAL NANOSTRUCTURING OF POROUS SILICON WITH REGENERATIVE ELECTROLESS ETCHING FOR BIOMEDICAL APPLICATIONS</b><br><u>E. MÄKILÄ</u> , A.-M. ANTON-WILLMORE, T. TEESALU, H. YU, M. AINDOW, L. T. CANHAM, K. W. KOLASINSKI AND J. SALONEN  |
| 12:00-12:15   | 03-O-08/<br>4                        | <b>SILICON-CARBON NANOCOMPOSITES WITH A HIERARCHICAL POROUS STRUCTURE: PREPARATION, PROPERTIES AND APPLICABILITY FOR ANODES OF LITHIUM-ION BATTERIES</b><br><u>E. V. ASTROVA</u> , V. P. ULIN, A. V. PARFENEVA AND A. M. RUMYANTSEV              |
| 12:20-12:35   | 03-O-09/<br>63                       | <b>SILICON NANOTUBE ARRAYS: A NOVEL INTRACELLULAR DELIVERY PLATFORM</b><br><u>S. ASLANOGLU</u> , Y. CHEN, T. MURAYAMA, G. GERVINSKAS, J. TIAN, Y. MORIKAWA, K. SUU, R. ELNATHAN AND N. H. VOELCKER   |
| 12:40-14:00   | <b>LUNCH at UNA ESPERIENZE HOTEL</b> |  |
| <b>Session 04 – Surface Chemistry and Pore Filling 1</b><br><b>Chairing: J. SALONEN AND C. GERGELLY</b>   |                                      |  |

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| 14:00-14:35  | 04-I-01/<br>10  | <b>CONTROLLED DRUG RELEASE FROM POROUS SILICON NANOPARTICLES</b><br>Y. XUE, T. TIEU, J. OSMAN, <u>B. PENG</u> AND N. H. VOELCKER ( <i>INVITED</i> )   |
| 14:40-14:55  | 04-O-02/<br>33  | <b>MICROPATTERNED STIMULI ON POROUS SILICON NANONEEDLES TO ORGANISE MOLECULAR SIGNALLING</b><br><u>V. CAPRETTINI</u> , M. MIURA, C. HAGEMANN, D. MARTELLA, A. SERIO AND C. CHIAPPINI                          |
| 15:00-15:15  | 04-O-03/<br>42  | <b>MESOPOROUS SILICON FILLED WITH FUNCTIONALIZED MOLECULES FOR HYBRID THERMOELECTRICS</b><br><u>N. GOSTKOWSKA-LEKNER</u> , D. KOJDA, D. WALLACHER, K. HABICHT AND T. HOFMANN                                  |
| 15:20-15:35  | 04-O-04/<br>67  | <b>UNRAVELING MASS TRANSFER LIMITATIONS OF POROUS SILICON-BASED APTASENSORS FOR PROTEIN DETECTION</b><br><u>S. ARSHAVSKY-GRAHAM</u> , E. BOYKO, R. SALAMA, S. ACKERMAN, T. SCHEPER, M. BERCOVICI AND E. SEGAL |
| 15:40-15:55  | 04-O-05/<br>101   | <b>POROUS SILICON AND SILICON NANOTUBES: AN APPROPRIATE PLATFORM FOR HARD MAGNETIC NANOMAGNETS</b><br><u>K. RUMPF</u> , P. GRANITZER, R. GONZALEZ-RODRIGUEZ, J. COFFER AND M. REISSNER                        |
| 16:00-16:20  | <b>COFFEE BREAK</b>   |   |
| <b>Session 04 – Surface Chemistry and Pore Filling 2</b><br><b>Chairing: K. RUMPF AND Y. COFFINIER</b>   |   |   |
| 16:20-16:35  | 04-O-06/<br>48  | <b>SYNTHESIS OF 3D NANOGRAFENE WITHIN MESOPOROUS GERMANIUM STRUCTURE</b><br><u>S. SAUZE</u> , M. R. AZIZIYAN, P. BRAULT, D. MACHON, R. ARÈS AND A. BOUCHERIF  |
| 16:40-16:55  | 04-O-07/<br>72  | <b>FEATURES OF THERMAL TRANSPORT IN “POROUS SILICON – LIQUID” NANOCOMPOSITE</b><br>P. LISHCHUK, K. TERMENDZIDIS, A. KUZMICH, V. LYSENKO, D. LACROIX AND <u>M. ISAIIEV</u>                                     |
| 17:00-17:15  | 04-O-08/<br>149   | <b>MAGNETIC NANOSPHERES WITHIN POROUS SILICON LIGHT EMITTING MICROPARTICLES</b><br>E. CHISTÈ, G. ISCHIA, M. GEROSA, P. MARZOLA, M. SCARPA AND <u>N. DALDOSSO</u>  |
| 17:20-17:35  | 04-O-09/<br>99  | <b>MICROPOROUS SILICON - A HOST MATERIAL FOR NANOSCOPIC MAGNETIC PARTICLES RESULTING IN SPECIFIC MAGNETIC PROPERTIES</b><br><u>P. GRANITZER</u> , K. RUMPF, H. MICHOR AND M. REISSNER                         |
| 17:40-18:00  | <b>Talk of the day voting</b>   |   |
| <b>POSTER Session 2 and Dinner Buffet</b><br><b>Chairing: E. SEGAL, L. A. OSMINKINA, J. MACAK, B. PRIETO-SIMON, J. FERRÉ-BORRUL, L. SANTINACCI, J. WU AND J. RYCKMAN</b> |   |   |
| 18:40-21:40  | 03 – Surface Chemistry and Pore Filling (14)<br>06 – Medical Applications, Imaging and Therapy (18)<br>08 – Sensors and Biosensors (12) |   |
| <b>Topic 03 (Posters) – Surface Chemistry and Pore Filling</b>   |   |   |
| 03-P2-01/<br>60  | <b>PHOTOCATALYTIC AND OPTICAL PROPERTIES OF ZINC OXIDE/COPPER COMPOSITES</b><br><u>N. TKACHYONOK</u> , E. CHUBENKO AND V. BONDARENKO    |   |

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| 03-P2-02/<br>85   | <b>COMPARISON OF THE EFFECTS OF H- AND F-PASSIVATION ON POROUS SILICON FOR SENSING OF NO<sub>2</sub> AND NO: A DFT STUDY</b><br>J. E. SANTANA, <u>F. DE SANTIAGO</u> , Á. MIRANDA, L. A. PÉREZ AND M. CRUZ-IRISSON   |
| 03-P2-03/<br>81   | <b>APTAMER-BASED BIOSENSOR FOR TARGETING BIOMARKERS IN THE DIGESTIVE TRACT FLUIDS</b><br>N. MASSAD-IVANIR, R. SALAMA, S. ARSHAVSKY-GRAHAM AND E. SEGAL   |
| 03-P2-04/<br>113  | <b>HYBRID THERMOELECTRIC MATERIALS BASED ON MESOPOROUS SILICON FILLED WITH POLY-3,4-ETHYLENDIOXYTHIOPHEN (PEDOT) POLYMER</b><br>M. MAY AND P. HUBER  |
| 03-P2-05/<br>112  | <b>SENSING POLYMER PROPERTIES USING POROUS SILICON</b><br>A. PIRA, A. AMATUCCI, E. PINNA AND <u>G. MULA</u>  |
| 03-P2-06/<br>95   | <b>POROUS SILICON DERIVATIZATION BY AN ALLYL-GLUCOSE FOR PROTEIN HOSTING</b><br>R. MORETTA, L. SERPICO, M. DE NISCO, F. CERMOLA, S. PEDATELLA, I. REA AND L. DE STEFANO  |
| 03-P2-07/<br>80   | <b>MAGNETIC CHARACTERIZATION OF POROUS SILICON – COBALT NANOPARTICLE COMPOSITE FOR RF DEVICE APPLICATION</b><br>T. DEFFORGE, P. GRANITZER, J. BILLOUE, B. LE BORGNE, G. GAUTIER AND K. RUMPF   |
| 03-P2-08/<br>26   | <b>REFLECTANCE STUDY ON INFILTRATION OF RHODAMINE DYE INSIDE NANOPOROUS ANODIC ALUMINA GRADIENT-INDEX FILTERS</b><br><u>P. KAPRUWAN</u> , J. FERRÉ-BORRULL AND L. F. MARSAL  |
| 03-P2-09/<br>124  | <b>POLYPYRROLE DEPOSITION ON NANOPOROUS SILICON SURFACE FUNCTIONALIZED WITH RAB7 PROTEIN. TOWARD SURFACE IMPRINTING FOR HIGH-SENSITIVITY OPTICAL SENSING</b><br><u>T. DI GIULIO</u> , C. MALITESTA, M. DE LUCA, C. BUCCI, S. MARIANI, L. STRAMBINI, G. BARILLARO AND E. MAZZOTTA |
| 03-P2-10/<br>83   | <b>COMPARATIVE STUDY OF THE EFFECTS OF LI AND NA ON THE ELECTRONIC PROPERTIES OF POROUS SILICON APPLIED TO BATTERIES</b><br><u>I. GONZÁLEZ</u> , A. TREJO AND M. CRUZ-IRISSON  |
| 03-P2-11/<br>20   | <b>RESPONSIVE RAFT POLYMER COATINGS FOR POROUS SILICON NANOPARTICLES – TOWARDS CONTROLLED DRUG RELEASE</b><br>L. ESSER, Y. ZHANG, K. J. CHENG, J. LÖSCH AND N. H. VOELCKER   |
| 03-P2-12/<br>44   | <b>PHASE TRANSION WITHIN NANOPORES OF POROUS SILICON USING HIGHLY CONCENTRATED AQUEOUS SOLUTION</b><br><u>S. INOGUCHI</u> , A. KITADA, K. MURASE AND K. FUKAMI   |
| 03-P2-13/<br>121  | <b>SYNTHESIS OF ZINC OXIDE THIN FILMS DOPED WITH TRANSITION METALS GROWN BY CATHODIC ELECTRODEPOSITION FROM AQUEOUS SOLUTION</b><br><u>K. YANUSHKEVICH</u> , E. CHUBENKO AND V. BONDARENKO   |
| 03-P2-14/<br>54   | <b>INVESTIGATION OF THERMALLY INDUCED POROUS GERMANIUM TRANSFORMATION FOR THE GROWTH OF III-V SOLAR CELLS ON POROUS GE</b><br><u>A. B. POUNGOUE MBEUNMI</u> , R. ARVINTE, A. DUPUY, S. SAUZE, R. ARÈS, S. FAFARD AND A. BOUCHERIF  |
| <b>Topic 06 (Posters) – Medical Applications, Imaging and Therapy</b> |  |
| 06-P2-01/<br>69   | <b>WATER SOLUBLE SILICON QUANTUM DOTS AS DRUG DELIVERY MATERIALS</b><br><u>K. KOH</u> , D. JUNG AND H. SOHN  |
| 06-P2-02/<br>13   | <b>LUMINESCENT POROUS SILICON MICROPARTICLES FUNCTIONALIZED ELECTROSPUN SCAFFOLD FOR WOUND MONITORING AND HEALING</b><br><u>W. DUAN</u> AND J. WU  |
| 06-P2-03/<br>62   | <b>MULTISTAGE, TARGETED DELIVERY SYSTEM COMBINING CHEMOTHERAPY AND HYPERTHERMIAFOR BREAST CANCER</b><br><u>I.KAUR</u> , T.TIEU, D. V. GOPAL, C. C. HOWARD, M. YUCE, A. CIFUENTES-RIUS AND N.H.VOELCKER   |

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| 06-P2-04/<br>36  | <b>INTRAVITREAL DELIVERY OF INTERFERON GAMMA FOR TREATMENT OF AGE-RELATED MACULAR DEGENERATION</b><br><u>S. SALUJA</u> , W. Y. TONG, E. L FLETCHER, J. BELLARE AND N. H. VOELCKER  |
| 06-P2-05/<br>141 | <b>ULTRASOUND-ASSISTED DRUG RELEASE FROM BIODEGRADABLE POROUS SILICON NANOPARTICLES</b><br><u>A. SVIRIDOV</u> , U. TSURIKOVA, D. MAKSUTOVA, M. GONGALSKY, V. EGOSHINA, V. ANDREEV, A. KUDRYAVTSEV AND L. OSMINKINA   |
| 06-P2-06/<br>137 | <b>POROUS SILICON MICROPARTICLES FOR ORTHOPEDIC TISSUE ENGINEERING</b><br><u>N. FATIMA</u> , E. J. C. DIAZ, A. DESOUTTER, H. SALEHI, F. CUNIN, F. CUISINIER AND P.-Y. C. DUTILLEUL   |
| 06-P2-07/<br>156 | <b>POROUS SILICON MICROPARTICLES FOR IMMUNE ADJUVANT DELIVERY</b><br><u>E. CHISTÈ</u> , A. SAMBUGARO, M. DONINI, M. SCARPA, S. DUSI AND N. DALDOSSO  |
| 06-P2-08/<br>103 | <b>SELECTED DESIGNS OF POROUS SILICON-POLYCAPROLACTONE COMPOSITE SCAFFOLDS: DRUG DELIVERY AND IN VITRO INTERACTIONS</b><br><u>N. K. BODIFORD</u> , S. J. P. MCINNES, N. SCHURTTLEFF, N. H. VOELCKER AND J. L. COFFER   |
| 06-P2-09/<br>87  | <b>EFFECT OF POROUS SILICON NANOPARTICLES ON LIFESPAN AND FERTILITY OF LIVING ORGANISMS: MODEL OF DROSOPHILA MELANOGASTER FLIES</b><br><u>G. K. MUSSABEK</u> , S.S. SARSEMBEK, S. Z. AZHGIREYEVA, N. ZH. OMIRBEKOVA, S. T. TULEUKHANOV, A. F. ALYKOVA, A. YU. KHARIN, V. YU. TIMOSHENKO            |
| 06-P2-10/<br>94  | <b>POROUS SILICON NANONEEDLES HARVESTING OF BIOMOLECULES FROM TISSUE</b><br><u>D. A. MARTELLA</u> AND C. CHIAPPINI   |
| 06-P2-11/<br>98  | <b>STEALTH BIOCOMPATIBLE POROUS SILICON NANOPARTICLES FOR BIOMEDICAL APPLICATIONS</b><br>W. LIU, A. CHAIX, M. GARY-BOBO, B. ANGELETTI, A. MASON, A. DA SILVA, M. DAURAT, L. LICHON, M. GARCIA, A. MORÈRE, K. EL CHEIKH, J.-O. DURAND, <u>F. CUNIN</u> AND M. AUFFAN                                |
| 06-P2-12/<br>140 | <b>MODELING OF POROUS SILICON NANOPARTICLES BIODEGRADATION BY DIFFUSION AND DISSOLUTION EQUATIONS</b><br>M.B. GONGALSKY, A. P. SVIRIDOV, YU. I. BEZSUDNOVA, L. A. OSMINKINA  |
| 06-P2-13/<br>135 | <b>BIODEGRADABLE POROUS SILICON NANOCONTAINERS AS AN EFFECTIVE DRUG CARRIER FOR REGULATION OF THE TUMOR CELL DEATH PATHWAYS</b><br><u>L. A. OSMINKINA</u> , P. V. MAXIMCHIK, K. TAMAROV, M. B. GONGALSKY, E. V. SHEVAL, E. TOLSTIK, T. KIRCHBERGER-TOLSTIK, Z. YANG, V. SIVAKOV AND B. ZHIVOTOVSKY |
| 06-P2-14/<br>17  | <b>TAILORING POROUS SILICON NANOPARTICLES FOR BOTH TARGETED BRAIN CANCER KILLING AND METASTASIS PREVENTION</b><br><u>M. LUO</u> , S. SHEYKHZADEH, G. LEWIK, B. PENG, J. C. RATCLIFFE, C. J. CHOI, T. TANG, E. MÄKILÄ, W. Y. TONG, N. H. VOELCKER   |
| 06-P2-15/<br>70  | <b>OXIDIZED POROUS SILICON NANOPARTICLES COVALENT-BONDED WITH LEVOFLOXACIN IN HYDROGEL POLYMER FOR DRUG DELIVERY</b><br><u>B. SHIN</u> AND H. SOHN   |
| 06-P2-16/<br>19  | <b>RAPID DETECTION OF ANABOLIC DOPING AGENTS IN URINE USING NANOMATERIAL BASED SURFACE-ASSISTED LASER DESORPTION/IONISATION MASS SPECTROMETRY</b><br><u>R. S. MINHAS</u> , D. A. RUDD, H. Z. ALHMOUD, T. GUINAN AND N. H. VOELCKER   |
| 06-P2-17/<br>111 | <b>USING SI NANOPARTICLES FOR DRUG'S TRANSPORT THROUGH THE BLOODBRAIN BARRIER FOR THE TREATMENT OF ALZHEIMER'S DISEASE</b><br><u>E. PODKORYTOV</u> , M. ŠT'ASTNÝ, O. H. ASNAZ, J. BENEDIKT, M. MÜLLER, P. GALÁŘ, D. KAČER, F. MUHAMETAJ, D. BERMEJO RODRIGUEZ, K. VALEŠ1 AND K. HERYNKOVÁ          |
| 06-P2-18/<br>18  | <b>POROUS SILICON-MEDIATED DRUG AND GENE DELIVERY VIA INTEGRIN TARGETING</b><br><u>M. WOJNIOŁOWICZ</u> , D. ZHANG, T. TIEU, H. THISSEN AND N. H. VOELCKER  |

| <b>Topic 08 (Posters) – Sensors and Biosensors</b> |   |
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| 08-P2-01/<br>144                                   | <b>LAYER-BY-LAYER NANO-ASSEMBLY OF CHARGED POLYELECTROLYTES ENGINEERED WITH BIORECEPTORS FOR HIGH-SENSITIVITY LABEL-FREE BIOSENSING WITH POROUS SILICON</b><br>S. MARIANI, V. ROBBIANO, L. STRAMBINI, A. DEBRASSI, G. EGRI, L. DÄHNE AND G. BARILLARO |
| 08-P2-02/<br>76                                    | <b>A NANOSTRUCTURED ZNO-BASED BIOSENSOR FOR CHRONIC LYMPHATIC LEUKEMIA DIAGNOSIS</b><br>T. CRISCI, G. CHIANESE, M. CASALINO, M. GIOFFRÈ, M. TERRACCIANO, N. BORBONE, G. OLIVIERO, I. REA AND L. DE STEFANO  |
| 08-P2-03/<br>59                                    | <b>SENSITIVITY OF OPTICAL SENSOR BASED ON POROUS SILICON BRAGG MIRROR</b><br>I.IVANOV, V. SKRYSHEVSKY AND A.BELAROUCI   |
| 08-P2-04/<br>32                                    | <b>ENHANCING THE SENSITIVITY OF SURFACE PLASMON RESONANCE SENSORS USING POROUS SILICON</b><br>R. F. BALDERAS-VALADEZ AND C. PACHOLSKI   |
| 08-P2-05/<br>65                                    | <b>ANTIFUNGAL SUSCEPTIBILITY TESTING OF ASPERGILLUS NIGER ON SILICON MICROWELLS BY INTENSITY-BASED REFLECTOMETRIC INTERFERENCE SPECTROSCOPY</b><br>C. HEUER, H. LEONARD, N. NITZAN, A. LAVY-ALPEROVITCH, N. MASSAD-IVANIR, T. SCHEPER AND E. SEGAL    |
| 08-P2-06/<br>14                                    | <b>SILVER-DECORATED PHOTOLUMINESCENT POROUS SILICON SENSORS FOR HF VAPOUR DETECTION</b><br>R. VERCAUTEREN, A. CHAIX, L. A. FRANCIS AND M. SAILOR  |
| 08-P2-07/<br>125                                   | <b>LABEL-FREE SERS ANALYSIS OF LIFE CYCLE IN ESCHERICHIA COLI AND STAPHYLOCOCCUS EPIDERMIDIS STRAINS</b><br>N. PACCOTTI, F. BOSCHETTO, S. HORIGUCHI, E. MARIN, A. CHIADÒ, C. NOVARA, F. GEOBALDO, F. GIORGIS AND G. PEZZOTTI                          |
| 08-P2-08/<br>92                                    | <b>MULTIPLEXED BIOMARKER DETECTION WITH POROUS SILICON-BASED APTASENSORS IN 3DPRINTED MICROFLUIDIC DEVICES</b><br>S. ARSHAVSKY-GRAHAM, O. SABACH, S. ACKERMAN, N. M. EPPING, J. BAHNEMANN AND E. SEGAL  |
| 08-P2-09/<br>75                                    | <b>GRAPHENE OXIDE-POROUS SILICON BASED BIOSENSOR FOR TEMPESTIVE DIAGNOSIS OF BRUGADA SYNDROME</b><br>R. MORETTA, C. SCHIATTARELLA, M. TERRACCIANO, N. BORBONE, G. OLIVIERO, I. REA AND L. DE STEFANO  |
| 08-P2-10/<br>38                                    | <b>COBINAMIDE-BASED POROUS SILICON OPTICAL SENSOR FOR THE SELECTIVE COLLECTION AND DETECTION OF HYDROGEN CYANIDE</b><br>S. VIJAYAKUMAR, A. CHAIX, Y-S. LU, G. R. BOSS, M.J. SAILOR, J. S. HA, C. E. WAHL AND D. E. HUNKA                              |
| 08-P2-11/<br>39                                    | <b>CARBON-STABILISED POROUS SILICON FOR ULTRASENSITIVE LABEL-FREE ELECTROCHEMICAL OLIGONUCLEOTIDE DETECTION</b><br>G. CHIN, K. GUO, R. B. VASANI, N. H. VOELCKER AND B. PRIETOSIMON   |
| 08-P2-12/<br>49                                    | <b>LOW-DIMENSIONAL POROUS COMPOSITE STRUCTURE BASED ON TIO2 AND GRAPHENE OXIDE: SYNTHESIS AND CHEMICAL SENSING PROPERTIES</b><br>V. GALSTYAN, A. PONZONI, I. KHOLMANOV, M. M. NATILE, A. GLISENTI, E. COMINI AND G. SBERVEGLIERI                      |

**END of the DAY**

## WEDNESDAY 18.03.2020

| Time  | Presentation Number | TITLE<br>Authors   |
|---|---------------------|--|
| <b>Session 05 – Sensors and Biosensors 1</b><br><b>Chairing: L. DE STEFANO AND C. PACHOLSKI</b> |                     |  |
| 09:00-09:35   | 05-I-01/<br>114     | <b>POROUS SILICON OPTICAL BIOSENSOR USING PEPTIDE-BASED CAPTURE AGENT</b><br><u>R. LAYOUNI</u> , T. CAO, P. E. LAIBINIS, M. B. COPPOCK AND S. M. WEISS ( <i>INVITED</i> )  |
| 09:40-9:55  | 05-O-02/<br>97      | <b>LAYER-BY-LAYER GOLD NANOPARTICLES DECORATION OF POROUS SILICON ENABLING INTERFEROMETRIC AND HYBRID PHOTONIC/PLASMONIC (BIO)SENSING</b><br>A. PAGHI, S. MARIANI, A. A. LA MATTINA, A. DEBRASSI, L. DÄHNE AND G. BARILLARO                      |
| 10:00-10:15   | 05-O-03/<br>2       | <b>CARBON-STABILIZED POROUS SILICON AS ELECTROCHEMICAL SENSING PLATFORM</b><br><u>M. ALBA</u> , K. GUO, R. J. TOH, A. SHARMA, E. ÁLVAREZ DE EULATE, T. R. GENGENBACH, X. CETÓ, N. H. VOELCKER AND B. PRIETO-SIMON                                |
| 10:20-10:35   | 05-O-04/<br>120     | <b>HYPERCHROMATIC STRUCTURAL COLOR: PERCEPTUALLY ENHANCED BIOSENSING BY THE NAKED EYE OR SMARTPHONE</b><br>T. H. TALUKDAR, B. MCCOY, S. K. TIMMINS, T. KHAN AND J. D. RYCKMAN  |
| 10:40-10:55   | 05-O-05/<br>123     | <b>APTAMER BASED DETECTION OF MYCOTOXINS BY SERS-ACTIVE AG-COATED POROUS SILICON-PDMS MICROFLUIDIC DEVICES</b><br><u>C. NOVARA</u> , A. CHIADO', N. PACCOTTI, T. ASAI, G. PEZZOTTI, P. RIVOLO, F. GEOBALDO, F. GIORGIS                           |
| 11:00-11:20   | <b>COFFEE BREAK</b> |  |
| <b>Session 05 – Sensors and Biosensors 2</b><br><b>Chairing: J. PARK AND L. FRANCIS</b>         |                     |  |
| 11:20-11:35   | 05-O-06/<br>126     | <b>DIAGNOSTIC SYSTEM FOR RAPID ANTIMICROBIAL SUSCEPTIBILITY TESTING OF CLINICAL SAMPLES</b><br><u>T. BORKUM</u> , H. LEONARD, N. MASSAD-IVANIR, R. COLODNER, M. STRAUSS AND E. SEGAL   |
| 11:40-11:55   | 05-O-07/<br>64      | <b>EARLY DETECTION OF SUBCLINICAL MASTITIS IN DAIRY COWS BASED ON FABRY-PÉROT INTERFEROMETER</b><br>N. PINKER AND <u>G. SHTENBERG</u>  |
| 12:00-12:15   | 05-O-08/<br>79      | <b>TETHERED LIPID BILAYERS WITHIN NANOSTRUCTURED POROUS SILICON: A BIOSENSING PLATFORM FOR OPTICAL MONITORING OF MEMBRANE-ASSOCIATED PROCESSES</b><br><u>L. ABRAHAMI PACHUK</u> , O. SABAH, C. HALI, E. TENENBAUM, N. MASSAD-IVANIR AND E. SEGAL |
| 12:20-12:35   | 05-O-09/<br>143     | <b>RAPID DETECTION OF THE BACTERIAL BIOMARKER PYOCYANIN IN ARTIFICIAL SPUTUM USING A SERS-ACTIVE SILICON NANOWIRE MATRIX COVERED BY BIMETALLIC NOBLE METAL NANOPARTICLES</b>   |



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|-------------|---|--|
|             |   | L. A. OSMINKINA, O. ŽUKOVSKAJA, S. N. AGAFILUSHKINA, V. SIVAKOV, K. A. GONCHAR, K. WEBER, J. POPP, D. CIALLA-MAY   |
| 12:40-12:55 | 05-O-10/<br>35  | <b>OPTICAL SENSORS BASED ON ONE-DIMENSIONAL POROUS SILICON PHOTONIC CRYSTALS DECORATED WITH STIMULI-RESPONSIVE HYDROGEL MICROSPHERES</b><br>R. F. BALDERAS VALADEZ AND <u>C. PACHOLSKI</u> |
| 13:00-13:20 | <b>Talk of the day voting</b>                                       |  |
| 13:20-14:40 | <b>CONFERENCE PHOTO followed by LUNCH at UNA ESPERIENZE HOTEL</b>   |  |
| 14:40-20:00 | <b>HALF DAY EXCURSION TO PISA HISTORICAL TOWN AND LEANING TOWER</b> |  |
| 20:00-21:40 | <b>PLACEE DINNER</b>  |  |

**END of the DAY**

THURSDAY 19.03.2020

| Time  | Presentation Number                  | TITLE<br>AUTHORS  |
|---|--------------------------------------|---|
| <b>Session 06 – Medical Applications, Imaging and Therapy 1</b> |                                      |   |
| <b>Chairing:</b> L. T. CANHAM AND V. AGARWAL                    |                                      |   |
| 09:00-09:35   | 06-I-01/<br>130                      | <b>2-PHOTON LIGHT ASSISTED THERAPIES WITH POROUS SILICON NANOPARTICLES</b><br>E. CUETO, A. CHAIX, M. GARY-BOBO, A. MORÈRE, M. GARCIA, C. PICHON, P. MIDOUX, M. MAYNADIER, J.-O. DURAND AND <u>F. CUNIN</u> (INVITED)  |
| 09:40-9:55  | 06-O-02/<br>109                      | <b>ENDOSOMOLYTIC POLYMER AND POROUS SILICON COMPOSITE NANOPARTICLES FOR THE DELIVERY OF ANTI-MIR PEPTIDE NUCLEIC ACIDS</b><br><u>I. B. KELLY III</u> , R. B. FLETCHER, S. M. WEISS AND C. L. DUVALL   |
| 10:00-10:15   | 06-O-03/<br>11                       | <b>DENDRIMER FUNCTIONALISED POROUS SILICON NANOPARTICLES FOR EFFECTIVE SIRNA DELIVERY TO PATIENT DERIVED EXPLANTS</b><br><u>T. TIEU</u> , S. IRANI, K. BREMERT, N. RYAN, H. THISSEN, L. M. BUTLER, A. CIFUENTES-RIUS AND N. H. VOELCKER   |
| 10:20-10:35   | 06-O-04/<br>142                      | <b>POROUS SILICON NANOCONTAINERS LOADED WITH SALINOMYCIN FOR CANCER THERAPY</b><br><u>M. A. KONOPLYANNIKOV</u> , A. S. EREMINA, I. M. LE-DEYGEN, YU. V. KARGINA, T. YU. BAZYLENKO, A. YU. KHARIN, G. M. YUSUBALIEVA, I. A. ZAMULAEVA AND V. YU. TIMOSHENKO  |
| 10:40-10:55   | 06-O-05/<br>148                      | <b>NANOPOROUS SILICON MICROPARTICLES FOR PROTECTED AND SUSTAINED DELIVERY OF PEPTIDES</b><br><u>P. S. ZANGABAD</u> , R. B. VASANI, Z. TONG, C. HICK, D. WOOTTEN, P. M. SEXTON, N. H. VOELCKER   |
| 11:00-11:20   | <b>COFFEE BREAK</b>                  |   |
| <b>Session 06 – Medical Applications, Imaging and Therapy 2</b> |                                      |   |
| <b>Chairing:</b> V. TIMOSHENKO AND J. M. WU                     |                                      |   |
| 11:20-11:35   | 06-O-06/<br>71                       | <b>POLY-L-LYSINE-CONJUGATED POROUS SILICON NANOPARTICLES AS LABEL-FREE LUMINESCENT PROBES FOR IN VIVO TIME-GATED IMAGING OF HYDRA VULGARIS</b><br><u>C. SCHIATTARELLA</u> , R. MORETTA, T. DEFFORGE, G. GAUTIER, C. TORTIGLIONE, B. DELLA VENTURA, M. TERRACCIANO, L. DE STEFANO, R. VELOTTA AND I. REA |
| 11:40-11:55   | 06-O-07/<br>12                       | <b>SPATIAL ANALYSIS OF LOW AND SUB-NANOGRAM PESTICIDE EXPOSURE IN HONEYBEES USING POROUS SILICON MASS SPECTROMETRY IMAGING</b><br><u>D. A. RUDD</u> , B. BOUGHTON, R. S. MINHAS, C. NOWELL, T. GUINAN, C. SCHOUTEN, D. LLOYD, K. BENKENDORFF5 AND N. H. VOELCKER  |
| 12:00-12:15   | 06-O-08/<br>134                      | <b>RADIONUCLIDE-LABELED POROUS SILICON NANOPARTICLES FOR NUCLEAR MEDICINE</b><br>V. K. TISHCHENKO, V. M. PETRIEV, P. V. SHEGAI, S. A. IVANOV, A. D. KAPRIN, A. F. ALYKOVA, A. YU. KHARIN AND <u>V. YU. TIMOSHENKO</u>   |
| 12:20-12:35   | 06-O-09/<br>31                       | <b>POROUS SILICON-GRAPHENE QUANTUM DOTS DUAL FLUORESCENT SYSTEM FOR DIABETIC WOUND MONITORING AND THERAPY</b><br>Y. X. CUI, A. W. PAN, F. N. XI AND <u>J. M. WU</u>   |
| 12:40-14:00   | <b>LUNCH at UNA ESPERIENZE HOTEL</b> |   |

| <b>Session 06 – Medical Applications, Imaging and Therapy 3</b> |   |  |
|---|---|--|
| <b>Chairing:</b> C. CHIAPPINI AND J. COFFER                     |   |  |
| 14:00-14:35   | 06-I-2/<br>58   | <b>IN VITRO DELIVERY OF SMALL INTERFERING RNA BY ONE DIMENSIONAL POROUS NANOTUBES OF SILICON</b><br><u>N. T. LE</u> , G. R. AKKARAJU AND J. L. COFFER ( <i>INVITED</i> )   |
| 14:40-14:55   | 06-O-10/<br>74  | <b>NEUROPROTECTIVE EFFECT OF NERVE GROWTH FACTOR LOADED IN POROUS SILICON NANOSTRUCTURES IN AN ALZHEIMER'S DISEASE MODEL AND POTENTIAL DELIVERY TO THE BRAIN</b><br>M. ROSENBERG, N. ZILONY, <u>N. K. BODIFORD</u> , O. SHEFI AND E. SEGAL   |
| 15:00-15:15   | 06-O-11/<br>90  | <b>POROUS SILICON FOR MINERALISED TISSUE REGENERATION VIA SUSTAINED RELEASE OF GSK3 INHIBITORS</b><br><u>M. KAASALAINEN</u> , A. A. BIRJANDI, J. PLASCEVIC, B. SABAGH, P. SHARPE AND C. CHIAPPINI  |
| 15:20-15:35   | 06-O-12/<br>57  | <b>THE EFFECT OF DRYING TECHNIQUE AND SURFACE PRE-TREATMENT ON THE CYTOTOXICITY AND DISSOLUTION RATE OF LUMINESCENT POROUS SILICON QUANTUM DOTS IN MODEL FLUIDS AND LIVING CELLS</b><br>U. A. TSURIKOVA, M. B. GONGALSKY, C. J. STOREY, Y. V. EVSTRATOVA, A. A. KUDRYAVTSEV, L. T. CANHAM AND <u>L. A. OSMINKINA</u> |
| 15:40-16:00   | <b>COFFEE BREAK</b>   |  |
| <b>Session 07 – Energy Storage and Conversion</b>               |   |  |
| <b>Chairing:</b> A. BOUCHERIF AND T. DEFFORGE                   |   |  |
| 16:00-16:35   | 07-I-01/<br>118   | <b>FABRICATION OF TiO<sub>2</sub> NANOTUBES FROM SPUTTERED-DEPOSITED TITANIUM FILM ON PLASTIC SUBSTRATES FOR FLEXIBLE LI-ION MICROBATTERIES</b><br><u>V. A. SUGIAWATI</u> , C. SESOLDI, J. TALBI, F. VACANDIO AND T. DJENIZIAN ( <i>INVITED</i> )  |
| 16:40-16:55   | 07-O-02/<br>136   | <b>FUNCTIONALIZED POROUS SILICON FOR EFFICIENT WATER PHOTOOXIDATION</b><br>M. E. DUFOND, G. LOGET, S. HASCHKE, J. BACHMANN, C. COZZI, G. BARILLARO AND <u>L. SANTINACCI</u>  |
| 17:00-17:15   | 07-O-03/<br>34  | <b>PHOTOELECTRO-OXIDATION OF UREA ON NANOPOROUS Fe<sub>2</sub>O<sub>3</sub>/Ni ELECTRODES</b><br>L. REBIAI, D. MULLER-BOUVET, S. AZIMI, V. ROCHER, M. LATROCHE, C. CACHET-VIVIER AND <u>S. BASTIDE</u>   |
| 17:20-17:35   | 07-O-04/<br>45  | <b>GRAPHENE-COATED MESOPOROUS GERMANIUM NANOCOMPOSITE AS ON-CHIP ANODE FOR LITHIUM-ION BATTERIES</b><br><u>A. DUPUY</u> , A. ROLAND, M. R. AZIZIYAN, S. SAUZE, D. MACHON, R. ARES AND A. BOUCHERIF   |
| 17:40-18:00   | <b>Talk of the Day, Best Conference Poster and Best Conference Presentation Voting</b>                    |  |
| 18:00-18:55   | CANHAM AWARD  | <b>AWARD LECTURE</b><br>DR. MICHAEL J. SAILOR, UNIVERSITY OF CALIFORNIA, SAN DIEGO (USA)   |
| 20:00-23:00   | <b>GALA DINNER and PRIZES</b><br><br>(Celebration at Bussola Versilia Restaurant - Marina di Pietrasanta) |  |

**END of the DAY**

FRIDAY 20.03.2020

|             |  |
|-------------|--|
| 10:00-11:00 | <p><b>PSST 2020 CLOSING</b><br/>Open discussion and further plans</p>            |
| 11:00-20:00 | <p><b>OPTIONAL ONE DAY EXCURSION TO FLORENCE</b><br/><i>(Lunch included)</i></p> |

**END of the PSST 2020 CONFERENCE**