

## UPCON2016 CONFERENCE PROGRAMME

| Day 1 –23 <sup>rd</sup> May 2016                     |       |       |           | The programme of UPCON conference –Monday   |  | Time [h:m] | Session chairs      |                  |
|--|-------|-------|-----------|---|--|------------|---------------------|------------------|
| S  | START | END   |           | EVENT   |  |            |                     |                  |
|  | 8:00  | 9:00  |           | Registration  |  | Open       |                     |                  |
|  | 9:00  | 9:15  |           | Welcome : <b>Hans Gorris, Tero Soukka, Artur Bednarkiewicz</b>  |  | 0:15       |                     |                  |
| Materials, materials characterisation & spectroscopy | 1     | 9:15  | <b>K1</b> | <i>EFFICIENT TAILORING OF UPCONVERSION ENERGY TRANSFER IN RARE EARTH NANOCRYSTALS BY ENGINEERING LOCAL STRUCTURE AND CORE/SHELL ARCHITECTURE</i><br><b>Chun-Hua Yan</b>   |  | 0:45       | Hans Gorris         |                  |
|  |       | 10:00 | <b>I1</b> | <i>SYNTHESIS AND PROPERTIES OF NaREF<sub>4</sub> CORE/SHELL NANOCRYSTALS</i><br>S. Dühren, T. Rinkel, A. Naduviledathu Raj, <b>Markus Haase</b>   |  | 0:30       |                     |                  |
|  |       | 10:30 | <b>I2</b> | <i>ENERGY-CASCADED UPCONVERSION IN LAYERED ONION-LIKE FLUORIDE NANOCRYSTALS</i><br><b>Guanying Chen</b>   |  | 0:30       |                     |                  |
|  |       | 11:00 | 11:20     |   | Coffee break (coffee/tea, cookies)   |            | 0:20                |                  |
|  | 2     | 11:20 | 11:40     | <b>O1</b>   | <i>POWER-DEPENDENT CHARACTERIZATION OF UPCONVERSION NANOPARTICLES IN THE VIS AND IR SPECTRAL REGION: NEW SETUP FOR ABSOLUTE QUANTUM YIELD MEASUREMENTS</i><br><b>Christian Würth, M. Kaiser, M. Kraft, V. Muhr, S. Wilhelm, T. Hirsch, Ute Resch-Genger</b>  |            | 0:20                | Ute Resch Genger |
|  |       | 11:40 | 12:00     | <b>O2</b>   | <i>PARTICLE SIZE DEPENDENT ABSOLUTE PHOTOLUMINESCENCE QUANTUM YIELDS AND LIFETIMES OF HEXAGONAL <math>\beta</math>-NaYF<sub>4</sub>: 2% Er<sup>3+</sup>, 20% Yb<sup>3+</sup> UPCONVERSION NANOPARTICLES IN CYCLOHEXANE AND WATER</i><br><b>Marco Kraft, Christian Würth, Martin Kaiser, Verena Muhr, Thomas Hirsch, Ute Resch-Genger</b> |            | 0:20                |                  |
|  |       | 12:00 | 12:20     | <b>O3</b>   | <i>Optimization of biofunctional upconversion nanoplatform - role of the shell</i><br><b>Hong Zhang</b>  |            | 0:20                |                  |
|  |       | 12:20 | 12:40     | <b>O4</b>   | <i>THE ROLE OF Yb<sup>3+</sup> SENSITIZER IN WATER-BASED QUENCHING OF UPCONVERSION PHOTOLUMINESCENCE</i><br><b>N. Perälä, Riikka Arppe, I. Hyppänen, M. Kaiser, C. Würth, U. Resch-Genger, M. Schäferling, T. Soukka</b>   |            | 0:20                |                  |
|  |       | 12:40 | 13:00     | <b>O5</b>   | <i>ELECTROPHORETIC CHARACTERIZATION OF PHOTON UPCONVERTING NANOPARTICLES AND THEIR BIOCONJUGATES</i><br><b>Antonín Hlaváček, J. Přikryl, F. Foret</b>  |            | 0:20                |                  |
|  |       | 13:00 | 14:00     |   | Lunch time   |            | 1:00                |                  |
| Instrumentation, applications, characterisation      | 3     | 14:00 | <b>K2</b> | <i>INTEGRATED ANALYTICAL DEVICES POWERED BY UPCONVERSION NANOTECHNOLOGY</i><br><b>Dayong Jin</b>  |  | 0:45       | Artur Bednarkiewicz |                  |
|  |       | 14:45 | <b>I3</b> | <i>HIGH-THROUGHPUT DESIGN OF UPCONVERTING NANOPARTICLES FOR NEAR-INFRARED IMAGING IN HIGHLY SCATTERING MEDIA</i><br><b>Emory M. Chan, E. S. Levy, C. Tajon, T. S. Bischof, A. Fernandez-Bravo, P. James Schuck, B. E. Cohen</b> |  | 0:30       |                     |                  |
|  |       | 15:15 | <b>I4</b> | <i>UPCONVERTING NANOPARTICLES PROVIDES MEANS FOR DEEP-TISSUE OPTICAL IMAGING AND PHOTOACTIVATION</i><br><b>Stefan Andersson-Engels, Haichun Liu, Monirehalsadat Mousavi</b>   |  | 0:30       |                     |                  |
|  |       | 15:45 | 16:00     |   | Coffee break (coffee/tea, cookies)   |            | 0:15                |                  |
|  | 4     | 16:00 | 16:20     | <b>O6</b>   | <i>IN SITU SINGLE PARTICLE POLARIZED SPECTROSCOPY OF OPTICALLY TRAPPED UPCONVERTING NANORODS</i><br><b>Paloma Rodríguez-Sevilla, L. Labrador-Páez, D. Wawrzyńczyk, M. Nyk, M. Samoć, A. Kumar Kar, M. D. Mackenzie, L. Paterson, D. Jaque, P. Haro-González</b>  |            | 0:20                | Hans Tanke       |
|  |       | 16:20 | 16:40     | <b>O7</b>   | <i>LANTHANIDE DOPED NANOPARTICLES - THE SOLUTION TO PHOTODYNAMIC HYBRIDOMA CELLS' SELECTION</i><br>A. Kowalczyk, M. Skowicki, S. Zelewski, K. Prorok, M. Misiak, <b>Tomasz Lipinski, Artur Bednarkiewicz</b>   |            | 0:20                |                  |
|  |       | 16:40 | 17:00     | <b>O8</b>   | <i>1.39 <math>\mu</math>M EXCITED Tm<sup>3+</sup> DOPED NANOPARTICLES FOR SUBTISSUE THERMAL SENSING WITH DEEP PENETRATION AND HIGH CONTRAST</i><br><b>Carlos Jacinto, A. F. Pereira, J. F. Silva, A. S. Gouveia-Neto, M. V. D. Vermelho</b>  |            | 0:20                |                  |
|  |       | 17:00 | 19:30     |   | COST Management meeting, free time for other participants  |            | 2:30                |                  |
|  | 20:00 | 23:00 |           | Joined conference dinner  |  | 3:00       |                     |                  |

| Day 2 –24 <sup>th</sup> May 2016                          |       |       |       | The programme of UPCON conference –Tuesday  |  |          |                         |
|---|-------|-------|-------|---|--|----------|-------------------------|
| Materials, characterisation, spectroscopy, UC enhancement | 5     | 9:00  | 9:45  | <b>K3</b>   | <i>ON UPCONVERTING Ln<sup>3+</sup> BASED NANOPARTICLES; A CRITICAL PERSPECTIVE ON SYNTHESIS, CHARACTERISATION, AND APPLICATIONS</i><br><b>Frank C.J.M. van Veggel</b>  | 0:45     | Tero Soukka             |
|   |       | 9:45  | 10:15 | <b>I5</b>   | <i>OPTICAL TRAPPING FOR SINGLE UP-CONVERTING PARTICLE SPECTROSCOPY: FUNDAMENTALS AND BIO-APPLICATIONS</i><br><b>Daniel Jaque</b> , P. Rodríguez-Sevilla, M. Pedroni, A. Speghini, M. Bettinelli, P. Haro-González, Yuhai Zhang, Liu Xiaogang and J. García Solé  | 0:30     |                         |
|   |       | 10:15 | 10:35 | <b>O9</b>   | <i>ELECTROPHORESIS COMBINED WITH UPCONVERSION SCANNING AS A POWERFUL TOOL FOR THE SEPARATION, CHARACTERIZATION AND HIGHLY SENSITIVE DETECTION OF UCNPS</i><br><b>Hans Gorris</b> , A. Hlaváček   | 0:20     |                         |
|   |       | 10:45 | 11:00 |   | Coffee break (coffee/tea, cookies)   | 0:15     |                         |
|   | 6     | 11:00 | 11:20 | <b>O10</b>  | <i>SIZE DEPENDENT UPCONVERSION NANOTHERMOMETRY BASED ON (Sr,Yb,Er)F<sub>2</sub> NANOPARTICLES</i><br><b>Sangeetha Balabhadra</b> , M. L. Debasu, J. Rocha, M. Bettinelli, L. D. Carlos   | 0:20     | Jose Garcia Sole        |
|   |       | 11:20 | 11:40 | <b>O11</b>  | <i>SYNTHESIS AND CHARACTERISATION OF VISIBLE/NEAR INFRARED LUMINESCENT ERBIUM COORDINATION COMPLEXES</i><br><b>Bahman Golesorkhi</b> , Y. Suffren, L. Guénéé, H. Nozary, A. Hauser, C. Piguet  | 0:20     |                         |
|   |       | 11:40 | 12:00 | <b>O12</b>  | <i>NANOPROBES FOR SENSING AND IMAGING OF INTRACELLULAR Ph BASED ON POLYETHYLENEIMINE-COATED PHOTON UPCONVERSION NANOPARTICLES CONJUGATED TO A Ph SENSITIVE RHODAMINE DYE</i><br><b>Michael Schäferling</b> , T. Deguchi, S. Christ, R. Peltomaa, N. Prabhakar, J. Rosenholm, R. Arppe, T. Soukka, T. Näreoja | 0:20     |                         |
|   |       | 12:00 | 12:20 | <b>O13</b>  | <i>ENHANCED UP-CONVERSION EMISSION IN Yb<sup>3+</sup>/Tm<sup>3+</sup>, Yb<sup>3+</sup>/Er<sup>3+</sup> AND Yb<sup>3+</sup>/Ho<sup>3+</sup>-DOPED GDVO<sub>4</sub> BY Li<sup>+</sup> CO-DOPING</i><br><b>Miroslav Dramicanin</b> , T. Gavrilović, D. Jovanović  | 0:20     |                         |
|   |       | 12:20 | 12:40 | <b>O14</b>  | <i>FLUORESCENCE ENHANCEMENT AND ENERGY PROPAGATION IN PLASMONIC NETWORKS</i><br><b>Sebastian Maćkowski</b> , K. Ciszak, A. Prymaczek, J. Grzelak, M. Nyk, D. Piatkowski  | 0:20     |                         |
|   |       | 12:45 | 13:45 |   | Lunch time   | 1:00     |                         |
| Chemistry, Physics and modelling of LnNPs                 | 7     | 13:45 | 14:30 | <b>K4</b>   | <i>REAL-TIME SPECTROSCOPIC MONITORING AND MATHEMATICAL MODELLING OF THE SYNTHESIS AND MODIFICATION OF NaYF<sub>4</sub> NANOCRYSTALS</i><br>P. Stanley May, P. B. May, <b>Mary T. Berry</b>   | 0:45     | Frank C.J.M. van Veggel |
|   |       | 14:30 | 15:00 | <b>I6</b>   | <i>SOPHISTICATION IN LANTHANIDE COORDINATION CHEMISTRY: A PREREQUISITE FOR IMPLEMENTING UPCONVERSION AT THE MOLECULAR LEVEL</i><br><b>Claude Piguet</b>  | 0:30     |                         |
|   |       | 15:00 | 15:30 | <b>I7</b>   | <i>SPECTROSCOPIC IMAGING OF SURFACE PLASMON POLARITON ENHANCED ENERGY TRANSFER UPCONVERSION IN NaYF<sub>4</sub>:Yb<sup>3+</sup>, Ln<sup>3+</sup> NANOPARTICLES</i><br><b>Steve Smith</b>   | 0:30     |                         |
|   |       | 15:30 | 15:50 | <b>O15</b>  | <i>MODELLING THE NANOSCALE EFFECT ON THE UPCONVERSION OF β-NaYF<sub>4</sub>:Yb<sup>3+</sup>, Er<sup>3+</sup></i><br><b>Stanley May</b> , Md Yeathad Hossan, A. Hor, S. Smith   | 0:20     |                         |
|   | 15:50 | 16:10 |       | Coffee break (coffee/tea, cookies)  | 0:20   |          |                         |
| 8   | 16:10 | 17:10 |       | Future perspectives of UCNPs – panel discussion   | 1:00   | AB,HG,TS |                         |
|   | 17:15 |       |       | Poster session – poster shall be fixed to boards in the morning, 3 prizes for best posters will be granted and announced at the end of the conference |  |          |                         |

| Day 3 –25 <sup>th</sup> May 2016                              |    |       |       | The programme of UPCON conference – Wednesday |   |      |                  |
|---|----|-------|-------|---|---|------|------------------|
|   | S  |       |       |   |   |      |                  |
| Bioassays, bio-applications, toxicity, functional NPs         | 9  | 9:00  | 9:30  | <b>18</b>                                     | UPCONVERTING PHOSPHOR BASED LATERAL FLOW ASSAYS FOR MONITORING IMMUNOTHERAPY<br><b>Hans Tanke</b> , C. J. de Dood, E. M. Tjon Kon Fat, P. L.A.M. Corstjens  | 0:30 | Dayong<br>Jin    |
|   |    | 9:30  | 10:00 | <b>19</b>                                     | UPCONVERSION LUMINESCENCE IN ULTRASENSITIVE SOLID-PHASE IMMUNOASSAY<br><b>N. Sirkka, A. Lyytikäinen, T. Savukoski, H. Pääkkilä, R. Arppe, Tero Soukka</b>   | 0:30 |                  |
|   |    | 10:00 | 10:20 | <b>O16</b>                                    | SIZE-DEPENDENT CYTOTOXICITY OF BARE NaGdF <sub>4</sub> :Yb <sup>+3</sup> :Er <sup>+3</sup> NANOCRYSTALS ON MACROPHAGES<br><b>Edyta Wysockńska</b> , J. Cichos , E. Ziolo , L. Strządała , M. Karbowskiak , W. Kałas   | 0:20 |                  |
|   |    | 10:20 | 10:40 | <b>O17</b>                                    | ENHANCING THE FUNCTIONALITY OF THE UPCONVERSION NANOPARTICLES<br><b>Julia Pérez-Prieto</b>  | 0:20 |                  |
|   |    | 10:40 | 11:00 |   | Coffee break (coffee/tea, cookies)  | 0:20 |                  |
| Biosensing, biodetection, bioimaging, therapies, theranostics | 10 | 11:00 | 11:20 | <b>O18</b>                                    | FRET AND PHOTOLUMINESCENCE LIFETIMES OF UPCONVERTING NANOPARTICLES: FROM PHOTOPHYSICAL PROPERTIES TO BIOSENSING<br><b>Niko Hildebrandt</b>  | 0:20 | Chun-<br>Hua Yan |
|   |    | 11:20 | 11:40 | <b>O19</b>                                    | HYBRID UPCONVERTING NANOCOMPOSITE FOR PHOTODYNAMIC THERAPY<br><b>Marta Maria Natile</b> , G. Sotgiu, G. Varchi, L. Armelao  | 0:20 |                  |
|   |    | 11:40 | 12:00 | <b>O20</b>                                    | INCREASING PENETRATION DEPTH IN BIOLOGICAL TISSUE IMAGING USING 808-NM EXCITED Nd <sup>3+</sup> /Yb <sup>3+</sup> /Er <sup>3+</sup> -DOPED UPCONVERTING NANOPARTICLES<br><b>Monirehalsadat Mousavi</b> , G. Sotgiu, G. Varchi, L. Armelao   | 0:20 |                  |
|   |    | 12:00 | 12:20 | <b>O21</b>                                    | OPTIMIZING UPCONVERTING NANOPARTICLES FOR FRET-BASED ASSAYS<br><b>Oleksii Dukhno</b> , F. Przybilla, Y. Arntz, M. Collot, A. Klymchenko, M. Buchner , V. Muhr, T. Hirsch, Y. Mely   | 0:20 |                  |
|   |    | 12:20 | 12:40 | <b>O22</b>                                    | LIVE-CELL IMAGING WITH UPCONVERTING NANOPARTICLES: 2D AND 3D SINGLE-PARTICLE TRACKING<br>Y. Han Song, H. Li Jo, J. Park, <b>Kang Taek Lee</b>   | 0:20 |                  |
|   |    | 12:40 | 13:00 | <b>O23</b>                                    | MULTIFUNCTIONAL OPTO-MAGNETIC NANOPARTICLES FOR THERANOSTIC APPLICATIONS<br><b>Bożena Sikora</b> , P. Kowalik, J. Mikulski, K. Fronc, I. Kamińska, M. Szewczyk, G. Gruzel, A. Konopka, K. Zajdel, M. Naurecka, R. Minikayev, T. Wojciechowski, M. Parlińska-Wojtan, A. Sienkiewicz M. Łapiński, M. Kwaśny, A. Borodziuk, M. Duda, K. Łysiak, A. Gardias, J. Rybusinski, J. Szczytko, A. Twardowski, M. Frontczak-Baniewicz, P. Stępień, G. Wilczyński, W. Paszkowicz, and D. Elbaum | 0:20 |                  |
|   |    | 13:00 | 13:20 | <b>O24</b>                                    | LIPID ENCAPSULATION AND RUTHENIUM DECORATION OF UPCONVERTING NANOPARTICLES (UCNPs) FOR PHOTO-ACTIVATED CHEMOTHERAPY (PACT)<br><b>Michael Meijer</b> , MM. Natile, S. Bonnet   | 0:20 |                  |
|   |    | 13:20 | 13:30 |   | Closing of Conference, announcement of next UPCON conference and school   | 0:10 |                  |
|   |    | 13:30 | 14:45 |   | Lunch time  | 1:15 |                  |

# **LIST OF ABSTRACTS**

WITH PRESENTING AUTHORS

**Keynote and invited talks (chronological order)**

| Presentation No. | First Name   | Last Name        | Abstract title  |
|------------------|--------------|------------------|---|
| K 1              | Chun-Hua     | Yan              | EFFICIENT TAILORING OF UPCONVERSION ENERGY TRANSFER IN RARE EARTH NANOCRYSTALS BY ENGINEERING LOCAL STRUCTURE AND CORE/SHELL ARCHITECTURE                       |
| K 2              | Dayong       | Jin              | INTEGRATED ANALYTICAL DEVICES POWERED BY UPCONVERSION NANOTECHNOLOGY  |
| K 3              | Frank C.J.M. | van Veggel       | ON UPCONVERTING Ln <sup>3+</sup> BASED NANOPARTICLES; A CRITICAL PERSPECTIVE ON SYNTHESIS, CHARACTERISATION, AND APPLICATIONS                                   |
| K 4              | Mary T.      | Berry            | REAL-TIME SPECTROSCOPIC MONITORING AND MATHEMATICAL MODELLING OF THE SYNTHESIS AND MODIFICATION OF NaYF <sub>4</sub> NANOCRYSTALS                               |
| I 1              | Markus       | Haase            | SYNTHESIS AND PROPERTIES OF NaREF <sub>4</sub> CORE/SHELL NANOCRYSTALS  |
| I 2              | Guanying     | Chen             | ENERGY-CASCADED UPCONVERSION IN LAYERED ONION-LIKE FLUORIDE NANOCRYSTALS  |
| I 3              | Emory M.     | Chan             | HIGH-THROUGHPUT DESIGN OF UPCONVERTING NANOPARTICLES FOR NEAR-INFRARED IMAGING IN HIGHLY SCATTERING MEDIA   |
| I 4              | Stefan       | Andersson-Engels | UPCONVERTING NANOPARTICLES PROVIDES MEANS FOR DEEP-TISSUE OPTICAL IMAGING AND PHOTOACTIVATION   |
| I 5              | Daniel       | Jaques           | OPTICAL TRAPPING FOR SINGLE UP-CONVERTING PARTICLE SPECTROSCOPY: FUNDAMENTALS AND BIO-APPLICATIONS  |
| I 6              | Claude       | Piguet           | SOPHISTICATION IN LANTHANIDE COORDINATION CHEMISTRY: A PREREQUISITE FOR IMPLEMENTING UPCONVERSION AT THE MOLECULAR LEVEL  |
| I 7              | Steve        | Smith            | SPECTROSCOPIC IMAGING OF SURFACE PLASMON POLARITON ENHANCED ENERGY TRANSFER UPCONVERSION IN NaYF <sub>4</sub> :Yb <sup>3+</sup> ,Ln <sup>3+</sup> NANOPARTICLES |
| I 8              | Hans J.      | Tanke            | MONITORING OF IMMUNE THERAPY USING UCNP BASED LATERAL FLOW ASSAYS   |
| I 9              | Tero         | Soukka           | UPCONVERSION LUMINESCENCE IN ULTRASENSITIVE SOLID-PHASE IMMUNOASSAY   |

**Oral presentations (chronological order)**

| Presentation No. | First Name | Last Name | Abstract title  |
|------------------|------------|-----------|---|
| O 1              | Christian  | Würth     | POWER-DEPENDENT CHARACTERIZATION OF UPCONVERSION NANOPARTICLES IN THE VIS AND IR SPECTRAL REGION: NEW SETUP FOR ABSOLUTE QUANTUM YIELD MEASUREMENTS |
| O 2              | Marco      | Kraft     | PARTICLE SIZE DEPENDENT ABSOLUTE PHOTOLUMINESCENCE QUANTUM YIELDS AND LIFETIMES OF HEXAGONAL β-   |

|      |                |                   |   |
|------|----------------|-------------------|---|
|      |                |                   | NaYF <sub>4</sub> : 2 % Er <sup>3+</sup> , 20 % Yb <sup>3+</sup> UPCONVERSION NANOPARTICLES IN CYCLOHEXANE AND WATER  |
| O 3  | Hong           | Zhang             | OPTIMIZATION OF BIOFUNCTIONAL UPCONVERSION NANOPLATFORM - ROLE OF THE SHELL   |
| O 4  | Riikka         | Arppe             | THE ROLE OF Yb <sup>3+</sup> SENSITIZER IN WATER-BASED QUENCHING OF UPCONVERSION PHOTOLUMINESCENCE  |
| O 5  | Antonín        | Hlaváček          | ELECTROPHORETIC CHARACTERIZATION OF PHOTON UPCONVERTING NANOPARTICLES AND THEIR BIOCONJUGATES   |
| O 6  | Paloma         | Rodríguez-Sevilla | IN SITU SINGLE PARTICLE POLARIZED SPECTROSCOPY OF OPTICALLY TRAPPED UPCONVERTING NANORODS   |
| O 7  | Artur          | Bednarkiewicz     | LANTHANIDE DOPED NANOPARTICLES – THE SOLUTION TO PHOTODYNAMIC HYBRIDOMA CELLS SELECTION   |
| O 8  | Carlos         | Jacinto           | 1.39 μm EXCITED Tm <sup>3+</sup> DOPED NANOPARTICLES FOR SUBTISSUE THERMAL SENSING WITH DEEP PENETRATION AND HIGH CONTRAST  |
| O 9  | Hans Heiner    | Gorris            | ELECTROPHORESIS COMBINED WITH UPCONVERSION SCANNING AS A POWERFUL TOOL FOR THE SEPARATION, CHARACTERIZATION AND HIGHLY SENSITIVE DETECTION OF UCNPS   |
| O 10 | Sangeetha      | Balabhadra        | SIZE DEPENDENT UPCONVERSION NANOTHERMOMETRY BASED ON (Sr,Yb,Er) <sub>2</sub> F <sub>2</sub> NANOPARTICLES   |
| O 11 | Bahman         | Golesorkhi        | SYNTHESIS AND CHARACTERISATION OF VISIBLE/NEAR INFRARED LUMINESCENT ERBIUM COORDINATION COMPLEXES   |
| O 12 | Michael        | Schäferling       | NANOPROBES FOR SENSING AND IMAGING OF INTRACELLULAR PH BASED ON POLYETHYLENEIMINE-COATED PHOTON UPCONVERSION NANOPARTICLES CONJUGATED TO A PH SENSITIVE RHODAMINE DYE                                   |
| O 13 | Miroslav       | Dramićanin        | ENHANCED UP-CONVERSION EMISSION IN Yb <sup>3+</sup> /Tm <sup>3+</sup> , Yb <sup>3+</sup> /Er <sup>3+</sup> AND Yb <sup>3+</sup> /Ho <sup>3+</sup> -DOPED GdVO <sub>4</sub> BY Li <sup>+</sup> CO-DOPING |
| O 14 | Sebastian      | Maćkowski         | FLUORESCENCE ENHANCEMENT AND ENERGY PROPAGATION IN PLASMONIC NETWORKS   |
| O 15 | Stanley        | May               | MODELLING THE NANOSCALE EFFECT ON THE UPCONVERSION OF β-NaYF <sub>4</sub> :Yb <sup>3+</sup> ,Er <sup>3+</sup>   |
| O 16 | Edyta          | Wysokińska        | SIZE-DEPENDENT CYTOTOXICITY OF BARE NaGdF <sub>4</sub> :Yb <sup>3+</sup> :Er <sup>3+</sup> NANOCRYSTALS ON MACROPHAGES  |
| O 17 | Julia          | Pérez-Prieto      | ENHANCING THE FUNCTIONALITY OF THE UPCONVERSION NANOPARTICLES   |
| O 18 | Niko           | Hildebrandt       | FRET AND PHOTOLUMINESCENCE LIFETIMES OF UPCONVERTING NANOPARTICLES: FROM PHOTOPHYSICAL PROPERTIES TO BIOSENSING   |
| O 19 | Marta Maria    | Natile            | HYBRID UPCONVERTING NANOCOMPOSITE FOR PHOTODYNAMIC THERAPY  |
| O 20 | Monirehalsadat | Mousavi           | INCREASING PENETRATION DEPTH IN BIOLOGICAL TISSUE IMAGING USING 808-NM EXCITED Nd <sup>3+</sup> /Yb <sup>3+</sup> /Er <sup>3+</sup> -DOPED UPCONVERTING NANOPARTICLES                                   |
| O 21 | Oleksii        | Dukhno            | OPTIMIZING UPCONVERTING NANOPARTICLES FOR FRET-BASED ASSAYS   |
| O 22 | Kang Taek      | Lee               | LIVE-CELL IMAGING WITH UPCONVERTING NANOPARTICLES: 2D AND 3D SINGLE-PARTICLE TRACKING   |
| O 23 | Bozena         | Sikora            | MULTIFUNCTIONAL OPTO-MAGNETIC NANOPARTICLES FOR THERANOSTIC APPLICATIONS  |
| O 24 | Michael S.     | Meijer            | LIPID ENCAPSULATION AND RUTHENIUM DECORATION OF UPCONVERTING NANOPARTICLES (UCNPS) FOR PHOTO-ACTIVATED CHEMOTHERAPY (PACT)  |

Poster presentations

| Presentation No. | First Name        | Last Name      | Abstract title  |
|------------------|-------------------|----------------|---|
| P 1              | Alpan             | Bek            | UPCONVERSION BY FANO RESONANT ALL-PLASMONIC AND MOLECULAR-PLASMONIC HYBRID NANOSTRUCTURES   |
| P 2              | Anna              | Borodziuk      | LANTHANIDE-DOPED UPCONVERSION NaYF <sub>4</sub> NANOPARTICLES FOR PHOTODYNAMIC THERAPY  |
| P 3              | Dmitry            | Busko          | CHARACTERISATION OF UPCONVERTING MATERIALS: FROM MACRO TO NANOSCALE   |
| P 4              | Veronika          | Čunderlová     | PREPARATION OF AVIDIN MODIFIED PHOTON UPCONVERSION NANOPARTICLES  |
| P 5              | Bartłomiej        | Czaban         | UPCONVERSION QUANTUM YIELD MEASUREMENTS – INSTRUMENTATION, MEASUREMENTS AND ISSUES  |
| P 6              | Anna              | Ekner-Grzyb    | <i>IN VITRO</i> CYTOTOXICITY EVALUATION OF UPCONVERTING CaLuF <sub>5</sub> AND SrLuF <sub>5</sub> NANOPARTICLES DOPED BY Yb <sup>3+</sup> AND Ho <sup>3+</sup> , Tm <sup>3+</sup> OR Er <sup>3+</sup> IONS  |
| P 7              | Nestor            | Estebanez      | FUNCTIONAL POLYMER-CAPPED UPCONVERSION NANOPARTICLES  |
| P 8              | Srećko            | Gajović        | ASSESSING UPCONVERTING NANOPARTICLE BIOCOMPATIBILITY FOR NEURAL STEM CELL IMAGING   |
| P 9              | Maciej            | Gawłowski      | BIO-FUNCTIONALIZATION OF UCNP <sub>s</sub> WITH PROTEIN G NOVEL APPROACH FOR UNIVERSAL IMMUNODETECTING AGENT  |
| P 10             | María             | González-Béjar | ASSEMBLY OF UPCONVERSION AND LUMINESCENT NANOPARTICLES  |
| P 11             | Justyna           | Grzelak        | ENERGY TRANSFER BETWEEN UP-CONVERTING NANOCRYSTAL AND ORGANIC POLYMER   |
| P 12             | Tomasz            | Grzyb          | SYNTHESIS, CHARACTERIZATION AND CYTOTOXICITY OF UPCONVERTING NANOFLUORIDES  |
| P 13             | Ricardas          | Rotomskis      | BIOCOMPATIBLE NaGdF:Yb,Er@NaGdF UPCONVERTING NANOPARTICLES FOR DUAL IMAGING   |
| P 14             | Daniel            | Horák          | SILICA-MODIFIED MONODISPERSE HEXAGONAL LANTHANIDE NANOCRYSTALS: SYNTHESIS AND BIOLOGICAL PROPERTIES   |
| P 15             | Dragana           | Jovanović      | LOW-TEMPERATURE SYNTHESIS OF MULTIFUNCTIONAL Tm <sup>3+</sup> /Yb <sup>3+</sup> , Er <sup>3+</sup> /Yb <sup>3+</sup> , Ho <sup>3+</sup> /Yb <sup>3+</sup> DOPED-REVO <sub>4</sub> (RE = Gd <sup>3+</sup> , Y <sup>3+</sup> , Lu <sup>3+</sup> ) ULTRASMALL COLLOIDAL UPCONVERTING NANOPARTICLES |
| P 16             | Beatriz           | Julián-López   | NEW SYNTHETIC ROUTES TOWARDS RATIONAL DESIGN OF EFFICIENT UCNP <sub>s</sub>   |
| P 17             | Magdalena         | Duda           | ENERGY TRANSFER BETWEEN ORGANIC DYES ("ANTENNA") ATTACHED TO THE SURFACE OF UPCONVERTING NANOPARTICLES  |
| P 18             | Cynthia Elisabeth | Kembuan        | STRUCTURED METAL NANOSHELL PARTICLES FOR CONTROLLED ENHANCEMENT OF PHOTON UP-CONVERSION AND Cu DETECTION  |
| P 19             | Uliana            | Kostiv         | RGDS- AND TAT-CONJUGATED NaYF <sub>4</sub> :Yb <sup>3+</sup> /Er <sup>3+</sup> &SiO <sub>2</sub> NANOPARTICLES: PREPARATION AND BIOLOGICAL PROPERTIES   |
| P 20             | Agnieszka         | Kowalczyk      | RATIOMETRIC DETECTION OF MONOCLONAL ANTIBODIES WITH LIPOPOLYSACCHARIDE FUNCTIONALIZED UPCONVERTING NANOPARTICLES  |
| P 21             | Przemysław        | Kowalik        | MULTIFUNCTIONAL OPTO-MAGNETIC UP-CONVERTING NaYF <sub>4</sub> &Fe <sub>3</sub> O <sub>4</sub> /SiO <sub>2</sub> NANOPARTICLES – SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL APPLICATIONS   |
| P 22             | Bettina           | Grael          | Nd AS SENSITIZER IN NaYF <sub>4</sub> :Yb,Er,Nd TRI-DOPED UPCONVERSION NANOCRYSTALS   |
| P 23             | Sergey            | Kuznetsov      | DEVELOPMENT OF EFFICIENT UP-CONVERSION LUMINOPHORES BASED ON CUBIC NaYF <sub>4</sub> :YB:ER AND   |

|      |              |              |   |
|------|--------------|--------------|---|
|      |              |              | SRF <sub>2</sub> :YB:ER FOR BIOMEDICAL APPLICATIONS   |
| P 24 | Satu         | Lahtinen     | SENSITIZING LONG-LIFETIME LUMINESCENT EUROPIUM(III) COMPLEX THROUGH INFRARED EXCITED PHOTON UPCONVERSION  |
| P 25 | Tero         | Laihinien    | EXTENSIVE STUDY OF NaYF <sub>4</sub> :Yb <sup>3+</sup> ,R <sup>3+</sup> UP-CONVERSION LUMINESCENCE MATERIALS  |
| P 26 | Karol        | Lemański     | UPCONVERSION EMISSION OF THE CRYSTALLINE POWDERS OF GaN DOPED WITH LANTHANIDE IONS  |
| P 27 | Tomasz       | Lipiński     | NEW APPROACH FOR THE FUNCTIONALIZATION OF LANTHANIDE UCNP <sub>s</sub>  |
| P 28 | Boris        | Majaron      | EFFECT OF THE COMPOSITION OF AQUEOUS MEDIA ON THE DISSOLUTION OF UPCONVERTING NaYF <sub>4</sub> :Yb <sup>3+</sup> ,Tm <sup>3+</sup> NANOPARTICLES               |
| P 29 | Giacomo      | Lucchini     | ALKALINE-EARTH FLUORIDE NANOPARTICLES ACTIVATED WITH Ln <sup>3+</sup> IONS FOR MULTIMODAL BIOIMAGING  |
| P 30 | Manoj        | Kumar Mahata | INTENSE YELLOW LIGHT EMITTING YVO <sub>4</sub> :Ho <sup>3+</sup> /Yb <sup>3+</sup> DUAL MODE PHOSPHOR   |
| P 31 | Lukasz       | Marciniak    | UP-CONVERTING RARE EARTH DOPED PHOSPHATES FOR NON-CONTACT TEMPERATURE SENSING   |
| P 32 | Marta        | Markowska    | POLYMER COATED NaGdF <sub>4</sub> :Yb <sup>3+</sup> :Er <sup>3+</sup> NANOCRYSTALS  |
| P 33 | Matthias     | Mickert      | HIGHLY SENSITIVE LASER SCANNING OF PHOTON-UPCONVERTING NANOPARTICLES ON A MACROSCOPIC SCALE   |
| P 34 | Małgorzata   | Misiak       | ENHANCEMENT OF UP-CONVERSION LUMINESCENCE IN Yb <sup>3+</sup> Tm <sup>3+</sup> CO-DOPED CaF <sub>2</sub> NANOCRYSTALS BY SYNTHESIS MODULATION                   |
| P 35 | Melissa-Jane | Monks        | SPECTROSCOPIC STUDY OF LANTHANIDE-DOPED ALKALINE FLUORIDE UPCONVERSION NANOPARTICLES PREPARED VIA SOL GEL SYNTHESIS   |
| P 36 | Helena       | Oliveira     | UNVEILING THE BIOCOMPATIBILITY OF UPCONVERTING NANOMATERIALS: FINDING THE BEST WAY FORWARD  |
| P 37 | Henna        | Päkkilä      | DUAL-MODE MULTIPLEXING USING PHOTON UPCONVERSION IMAGING  |
| P 38 | Emilia       | Palo         | SENSITISING UP-CONVERSION MATERIALS WITH LAYER-BY-LAYER METHOD  |
| P 39 | Eric         | Pedrol       | A MICROFLUIDIC CHIP FOR UP-CONVERTING PARTICLE COUNTER  |
| P 40 | Niina        | Perälä       | RAPID APTAMER BASED HOMOGENEOUS ASSAY FOR ADENOSINE DEAMINASE ACTIVITY USING UPCONVERSION RESONANCE ENERGY TRANSFER   |
| P 41 | Krisjanis    | Smits        | ZIRCONIA NANOPARTICLES FOR BIO-IMAGING APPLICATIONS   |
| P 42 | Aleksandra   | Pilch        | ENERGY TRANSFER UPCONVERSION ENHANCEMENT IN HETEROGENOUSLY RARE EARTH DOPED ACTIVE-CORE @ ACTIVE-SHELL (ACAS) NANOPARTICLES                                     |
| P 43 | Sebastian    | Radunz       | EFFECT OF THE DISSOLUTION OF FLUORIDE UCNPS ON THEIR OPTICAL PROPERTIES   |
| P 44 | Daria        | Pominova     | THEORETICAL AND EXPERIMENTAL STUDY OF OPTIMAL PULSED MODE REGIMES FOR UPCONVERSION LUMINESCENCE EXCITATION  |
| P 45 | Ihor         | Panas        | J-AGGREGATES AS EFFECTIVE LIGHT HARVESTING UNITS FOR IMPROVING SPECTRAL PROPERTIES OF FLUORESCENT EMITTERS  |
| P 46 | Katarzyna    | Prorok       | UP- AND DOWN-CONVERSION LUMINESCENCE OF Tb <sup>3+</sup> /Yb <sup>3+</sup> CODOPED Y <sub>2</sub> O <sub>3</sub> NANOPARTICLES                                  |
| P 47 | Dominika     | Przybylska   | NANOLUMINOPHORES BASED ON M <sup>II</sup> F <sub>2</sub> FLUORIDES (M <sup>II</sup> = Ba, Ca, Sr), DOPED LANTHANIDE IONS (Yb <sup>3+</sup> , Tm <sup>3+</sup> , |



|      |            |                 | Er <sup>3+</sup> , Ho <sup>3+</sup> ) SHOWING UP-CONVERSION PHENOMENA  |
|------|------------|-----------------|--|
| P 48 | Benjamin   | Ritter          | NOVEL FLUOROLYTIC SOL-GEL SYNTHESIS OF RARE EARTH DOPED ALKALINE EARTH METAL FLUORIDE NANOPARTICLES  |
| P 49 | Anastasia  | Ryabova         | UPCONVERSION MICROPARTICLES AS TIME-RESOLVED PROBES IN LASER SCANNING MULTIPHOTON MICROSCOPY   |
| P 50 | Jarosław   | Rybusiński      | UP-CONVERSION IN MAGNETIC FIELD AND MAGNETIC PROPERTIES OF UP-CONVERTING NANOPARTICLES DOPED WITH RARE EARTH ELEMENTS, FOR BIO-MEDICAL IMAGING AND TREATMENT   |
| P 51 | Maysoon    | Saleh           | OPTIMIZATION OF THE COATING PROCEDURE OF UPCONVERSION NANOPARTICLES WITH SILICA  |
| P 52 | Michał     | Skowicki        | POLYSACCHARIDE BASED SURFACE MODIFICATION OF UPCONVERTING NANOPARTICLES AND THEIR APPLICATION  |
| P 53 | Krisjanis  | Smits           | EFFICIENCY OF UP-CONVERSION LUMINESCENCE OF Yb/Tm DOPED FLUORAPATITE NANOPOWDERS AND CERAMICS  |
| P 54 | Paulina    | Sobierajska     | LUMINESCENCE PROPERTIES OF Er <sup>3+</sup> /Yb <sup>3+</sup> IONS LOCATED IN Li <sup>+</sup> -DOPED FLUORAPATITE NANOMATERIALS                                |
| P 55 | Mariusz    | Stefanski       | EFFICIENT BROADBAND ANTI-STOKES EMISSION FROM Yb <sup>3+</sup> :Sr <sub>2</sub> CeO <sub>4</sub> NANOCRYSTALS  |
| P 56 | Adam       | Strzęp          | SPECTROSCOPIC PROPERTIES OF NOVEL NANOSIZED MATERIAL: Eu DOPED YAsO <sub>4</sub>   |
| P 57 | Robert     | Tomala          | THE STUDY OF UP-CONVERSION EMISSION OF Y <sub>2</sub> Si <sub>2</sub> O <sub>7</sub> :Nd <sup>3+</sup> NANOCRYSTALS  |
| P 58 | Artur      | Tymiński        | UP-CONVERSION LUMINESCENCE OF Yb <sup>3+</sup> /Ln <sup>3+</sup> (Ln = Ho, Er, Tm, Tb, Eu) DOPED PHOSPHATE NANOCRYSTALS  |
| P 59 | Adam       | Watras          | STRONG UP-CONVERSION EMISSION OF NOVEL Ca <sub>9</sub> Yb(PO <sub>4</sub> ) <sub>7</sub> : Er <sup>3+</sup> PHOSPHOR   |
| P 60 | Dominika   | Wawrzyńczyk     | THE INFLUENCE OF OPTICALLY ACTIVE MOLECULES COATING ON SPECTROSCOPIC PROPERTIES OF UP-CONVERTING NaYF <sub>4</sub> NANOPARTICLES                               |
| P 61 | Rafał J.   | Wiglusz         | MATERIALS FOR REGENERATIVE MEDICINE  |
| P 62 | Erving     | Ximendes        | SELF-MONITORED PHOTOTHERMAL NANOPARTICLES BASED ON CORE-SHELL ENGINEERING  |
| P 63 | Katarzyna  | Zawisza         | UP-CONVERTING Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> NANOPARTICLES ACTIVATED WITH Er <sup>3+</sup> AND Yb <sup>3+</sup> ION PAIRS FOR BIOAPPLICATIONS |
| P 64 | Aleksander | Zięcina         | SIZE TUNEABLE COLOUR UP-CONVERSION OF SrTiO <sub>3</sub> :Er <sup>3+</sup> /Yb <sup>3+</sup> NANOPARTICLES   |
| P 65 | Shuang     | Fang Lim        | ENHANCEMENT OF UP CONVERTED FLUORESCENCE BY SUBWAVELENGTH INTERFERENCE LAYERS  |
| P 66 | Shuang     | Fang Lim        | NANOPLASMONIC UPCONVERTING NANOPARTICLES AS ORIENTATION SENSORS FOR SINGLE PARTICLE MICROSCOPY   |
| P 67 | Federico   | Herrera         | THE FLATWORM Schmidtea Mediterranea AS AN IN VIVO MODEL FOR THE TOXICITY OF UPCONVERTING NANOPARTICLES   |
| P68  | Eleonore   | Fröhlich        | TOXICOLOGICAL ASSESSMENT OF UCNPS In Vitro   |
| P69  | Emir       | Karamehmedović  | REMOVAL OF THE TIME-INVARIANT COMPONENT FROM AN OPTICAL SIGNAL UTILIZING NONLINEAR ELEMENT IN A RING LASER   |
| P70  | Diego      | Mendez-Gonzalez | OLYETHYLENE GLYCATED NaYF <sub>4</sub> :Yb,Tm@SiO <sub>2</sub> NANOPARTICLES: NIR LIGHT RESPONSIVE SYSTEMS FOR   |

|     |        |                 |  |
|-----|--------|-----------------|--|
|     |        |                 | TRIGGERING THE RELEASE OF DOXORUBICIN  |
| P71 | Diego  | Mendez-Gonzalez | DENGUE miRNA BIOSENSOR BASED ON UCNPs AND GO   |
| P72 | Marco  | Laurenti        | UPCONVERSION EMISSION ENHANCEMENT THROUGH OLIGONUCLEOTIDE MEDIATED INTERACTION BETWEEN NaYF <sub>4</sub> :Yb,Er NANOPARTICLES AND C-DOTS                 |
| P73 | Shashi | Bhuckory        | MORPHOLOGICAL AND OPTICAL CHARACTERIZATION OF PEGYLATED-Er <sup>3+</sup> ,Yb <sup>3+</sup> -DOPED NaGdF <sub>4</sub> UPCONVERSION NANOPARTICLES FOR FRET |
| P74 | Meral  | Yüce            | SURFACE FUNCTIONALIZATION OF UP-CONVERTING NANOPARTICLES WITH APTAMERS FOR SENSING PURPOSES  |