

**LETERA Fotonikas un viedo materiālu klasteri interesējošās pētniecības tēmas
doktorantiem**

Index	Level	Content
A1	3	Spinning of fibers of different synthetic quartz materials during fiber drawing and its effect on the spectral attenuation of fibers, photodegradation resistance, etc.
A2	3	Tensile strength of fiber during fiber drawing and its effect on the optical properties of the fiber
A3	1	The origin of primary defects and the maximum power threshold for fused bundles when used with pulsed (ns) and CW sources
A4	1	Innovative polymer coatings for silica optical fibers
A5	2	Fused fiber optic bundles from Hydrogen rich silica fiber
A6	2	Modelling and design of fiber optic bundles and elements, including tapered fiber and fused bundles
A7	1	Single fiber endoscopes
A8	1	NA as a function from the polymerization degree of the solid (reflecting) polymer
A9	3	Dependence of fiber drawing speed on fiber temperature before entering the first coating block
A10	3	Effect of the UV oven on polymer/quartz adhesion and grinding
A11	3	Influence of thermal furnace power (temperature) on polymer/quartz adhesion and grinding
A12	3	Development of the optimal testing of polymerization of polymer in production environment
A13	3	Development of equipment for eccentricity measurement of fiber during optical fiber drawing process
A14	3	Development of equipment for eccentricity measurement of capillary during optical capillary drawing process
A15	3	Mechanical properties of polyimide depending on the polymerization temperature

A16	3	Influence of dust on the mechanical properties of polyimide, in the process of coating during fiber drawing
A17	3	Influence of the solid polymer coating technology on the drawing speed of the fiber
A18	2	Use of metallic coatings in the production of quartz optical fibers
B1	2	Development of antireflective coatings for silver halide fibers, general range of wavelength 4-15um. Materials, deposition technology, characteristics
B2	2	Antireflective coatings for DUV range, deposited on silica. Influence of deposition technology on characteristics, studies of stability under exploitation conditions
B3	2	Studies of LIDT (laser induced damage threshold) for UV-VIS-IR range (main interest 1040-1080nm) for air/silica and air/AR-coating/silica surfaces/interfaces
B4	3	Measurements of impurities (metal ions, OH etc) and defects in silica samples, possibly in fiber samples. Possible tuning of IR and EPMA equipment for silica slices measurements
B5	3	Stability of all-silica fibers, which will be suitable to use under harsh environmental conditions: high temperature, strong UV, gamma or other radiation. Possibly link to ITER project or manufacturers of DUV lithography equipment
B6	1	Interaction between laser irradiation and live tissues
C1	1	Studies of the correlation between coating technology parameters and functional properties of the thin films
C2	2	Functional multilayer coating (including anti-reflective and anti-bacterial) fabrication and post-processing
C3	2	Study of the physical mechanisms and methods to control dynamic (hours, days, weeks) change of the properties of functional (including anti-reflective and anti-bacterial) multilayer coatings
D1	2	Thin coatings in nm range
D2	1	H2 electrolyzers technologies and thin film based materials
D3	2	Fuel cell technologies and thin film based materials
E1	2	OLED stack optimization

E2	1	Flexible electronic (includes printed electronic) technology development and prototyping
F1	2	Meta-optical device design and fabrication
F2	2	Freeform optics design and fabrication
G1	1	Micro-optics, LCD, projection systems design and fabrication
G2	2	Functional thin film coatings (including anti-reflective and hybrid)
G3	1	Dynamic light scattering of liquid crystals
H1	2	Design and fabrication of semiconductor elements and devices
H2	2	Design and fabrication of microfluidic devices based on semiconductor technologies
I1	2	Parasitic effects in analog chips manufactured on the basis of bipolar technology
I2	2	Radiation defects in analog chips manufactured using bipolar technology
J1	1	Physics of Detector Semiconductor materials
J2	1	Physics of Semiconductor Devices
J3	2	Technologies of Semiconductor Devices
J4	1	Performance Computer Simulation of Semiconductor Devices
J5	1	Investigation of Performance of Semiconductor Devices
J6	2	X-Ray Fluorescence Analysis of Materials (on-line)
J7	2	Gamma Activation Analysis of Gold and Rare Earth Elements
J8	2	Neutron Activation Analysis of Materials
J9	2	Fresh and used nuclear fuel
J10	2	Radio Nuclide Waste in Nuclear Industry
J11	2	Radio Nuclide Pollutions in Environment (meal; soil, water..)
J12	1	Dark Matter Search
J13	1	Neutrino-antineutrino registration
J14	1	Double Betta Decay registration

J15	3	Vacuum Science & Engineering (Engineering)
J16	3	Cryogenic Cooling (Engineering)