

**ERC Advanced Grants 2009 - First results (Jan. 2010) -
- PHYSICAL SCIENCES and ENGINEERING -
List of projects invited for funding (alphabetical order)**

Last name	First name	Host Institution	HI Country	Acronym	Project Title	Panel
AGGARWAL	Varinder Kumar	University of Bristol	UK	ROSEPOT	Revolutionising Organic Synthesis: Efficient One-Pot Synthesis of Complex Organic Molecules for Non-Experts	PE5
ALBERTSSON	Ann-Christine	Kungliga Tekniska Högskolan	SE	PARADIGM	New Paradigm in the Design of Degradable Polymeric Materials - Macroscopic Performance Translated to all Levels of Order	PE8
ALDÉN	Marcus	Lunds Universitet	SE	DALDECS	Development and Application of Laser Diagnostic Techniques for Combustion Studies	PE8
AMBROSIO	Luigi	Scuola Normale Superiore di Pisa	IT	GeMeThnES	Geometric Measure Theory in non-Euclidean spaces	PE1
BÄCKVALL	Jan Erling	Stockholms Universitet	SE	OXLEET	Oxidation via low-energy electron transfer. Development of green oxidation methodology via a biomimetic approach	PE5
BALIBAR	Sebastien	Centre National de la Recherche Scientifique (CNRS)	FR	SUPERSOLID	The Enigma of Supersolidity	PE3
BANIN	Uri	The Hebrew University of Jerusalem	IL	DCENSY	Doping, Charge Transfer and Energy Flow in Hybrid Nanoparticle Systems	PE4
BARTH	Johannes V.	Technische Universität München	DE	MolArt	Surface-Confined Metallosupramolecular Architecture: Towards a Novel Coordination Chemistry for the Design of Functional Nanosystems	PE4
BELL	Anthony Raymond	The Chancellor, Masters and Scholars of the University of Oxford	UK	CMR	Cosmic ray acceleration, magnetic field and radiation hydrodynamics	PE9
BIGOT	Jean-Yves	Centre National de la Recherche Scientifique (CNRS)	FR	ATOMAG	From Attosecond Magnetism towards Ultrafast Spin Photonics	PE3
BLUNDY	Jonathan David	University of Bristol	UK	CRITMAG	Critical Behaviour in Magmatic Systems	PE10
BUCHS-SCHWAB	Christoph	Eidgenössische Technische Hochschule Zürich	CH	STAHPDE	Sparse Tensor Approximations of High-Dimensional and stochastic Partial Differential Equations	PE1
CHABRIER	Gilles	Centre National de la Recherche Scientifique (CNRS)	FR	PEPS	Exploring the physics of Proto-stars and Extra-solar PlanetS	PE9
CHRISTODOULOU	Demetrios	Eidgenössische Technische Hochschule Zürich	CH	pdecP	Partial differential equations of Classical Physics	PE1
CLAUSTRE	Hervé	Centre National de la Recherche Scientifique (CNRS)	FR	REMOCEAN	Remotely sensed biogeochemical cycles in the ocean	PE10
CLOKE	Frederick Geoffrey Nethersole	University of Sussex	UK	RTCO	Reductive Transformations of Carbon Oxides	PE5
COQUAND	Thierry	Göteborgs Universitet	SE	FORMATH	Formalization of Constructive Mathematics	PE6
CORONADO	Eugenio	Universitat de Valencia	ES	SPINMOL	Magnetic Molecules and Hybrid Materials for Molecular Spintronics	PE5
COWBURN	Russell Paul	Imperial College of Science, Technology and Medicine	UK	3SPIN	Three Dimensional Spintronics	PE3
DAHL-JENSEN	Dorthe	Københavns Universitet	DK	WATERundertheICE	Where is the water under the Greenland ice sheet?	PE10
DE COLA	Luisa	Westfälische Wilhelms-Universität Münster	DE	MaGIC	(Nano)-Materials for cell Growth, Imaging and Communication	PE5
DE MICHELI	Giovanni	Ecole Polytechnique Fédérale de Lausanne	CH	NANOSYS	Nanosystems: Architectures, Design and Applications	PE6
DEKKER	Cornelis	Technische Universiteit Delft	NL	NANOforBIO	Nanostructures for biology	PE3
DELSING	Per	Chalmers Tekniska Högskola AB	SE	QuOMP	Quantum optics with microwave photons building a tool-box based on superconducting technology	PE3
DIEDERICH	François Nico	Eidgenössische Technische Hochschule Zürich	CH	OPTELOMAC	Opto-Electronic Organic Materials by New Acetylene Chemistry	PE5
DIENY	Bernard	Commissariat à l'Energie Atomique (CEA)	FR	HYMAGINE	Hybrid CMOS/Magnetic components and systems for energy efficient, non-volatile, reprogrammable integrated electronics	PE7
DINGWELL	Donald Bruce	Ludwig-Maximilians-Universität München	DE	EVOKES	Explosive Volcanism in the Earth System	PE10
DONALDSON	Simon Kirwan	Imperial College of Science, Technology and Medicine	UK	DifferentialGeometr	Geometric analysis, complex geometry and gauge theory	PE1
DORIGO	Marco	Université Libre de Bruxelles	BE	E-SWARM	Engineering Swarm Intelligence Systems	PE6
DRISCOLL	Judith	The Chancellor, Masters and Scholars of the University of Cambridge	UK	NOVOX	Perfectly interfaced nanomaterials for next generation oxide electronics	PE5

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DUNLOP	James	The University of Edinburgh	UK	CHOMP	A Complete History of Massive Proto-Galaxies	PE9
ELSAESSER	Thomas	Forschungsverbund Berlin e.V.	DE	ULTRADYNE	Ultrafast dynamics of hydrogen bonded structures in condensed matter	PE3
ERIKSSON	Olle	Uppsala Universitet	SE	ASD	Atomistic Spin-Dynamics; Methodology and Applications	PE3
ESSLINGER	Tilman	Eidgenössische Technische Hochschule Zürich	CH	SQMS	Synthetic Quantum Many-Body Systems	PE2
FERRONI	Fernando	Istituto Nazionale di Fisica Nucleare	IT	LUCIFER	Low-background Underground Cryogenic Installation For Elusive Rates	PE2
FRISWELL	Michael	Swansea University	UK	OMSAMA	Optimisation of Multiscale Structures with Applications to Morphing Aircraft	PE8
FRYDMAN	Lucio	Weizmann Institute of Science	IL	UltraNMR	Ultrafast Hyperpolarized NMR and MRI in Multiple Dimensions	PE4
FUA	Pascal	Ecole Polytechnique Fédérale de Lausanne	CH	MicroNano	Modeling Brain Circuitry using Scales Ranging from Micrometer to Nanometer	PE6
GOLDSTEIN	Raymond Ethan	The Chancellor, Masters and Scholars of the University of Cambridge	UK	BIOCOMPLEX	Physical Aspects of the Evolution of Biological Complexity	PE3
GOTTLÖB	Georg	The Chancellor, Masters and Scholars of the University of Oxford	UK	DIADEM	Domain-centric Intelligent Automated Data Extraction Methodology	PE6
GRANGIER	Philippe	Centre National de la Recherche Scientifique (CNRS)	FR	DELPHI	Deterministic Logical Photon-Photon Interactions	PE2
GRÄTZEL	Michael	Ecole Polytechnique Fédérale de Lausanne	CH	MESOLIGHT	Mesosopic Junctions for Light Energy Harvesting and Conversion	PE5
GREEN	Michael	The Chancellor, Masters and Scholars of the University of Cambridge	UK	STRING	Properties and Applications of the Gauge/Gravity Correspondence	PE2
GREGORY	Jonathan Michael	The University of Reading	UK	seachange	Sea-level change due to climate change	PE10
GREY	Clare Philomena	The Chancellor, Masters and Scholars of the University of Cambridge	UK	LIBNMR	Structure and Function: The Development and Application of Novel Ex- and In-situ NMR Approaches to Study Lithium Ion Batteries and Fuel Cell Membranes	PE5
HAAGERUP	Uffe Valentin	Københavns Universitet	DK	OAFPG	Operator Algebras, Free Probability, and Groups	PE1
HALLIDAY	Alexander	The Chancellor, Masters and Scholars of the University of Oxford	UK	NEWISOTOPEGEOSCIENCE	New isotope systems for the geosciences	PE10
HAMM	Peter	Universität Zürich	CH	DYNALLO	Towards a Dynamical Understanding of Allostery	PE4
HAROCHE	Serge	Centre National de la Recherche Scientifique (CNRS)	FR	DECLIC	Exploring the Decoherence of Light in Cavities	PE2
HAYWARD	Vincent	Université Pierre et Marie Curie - Paris 6	FR	PATCH	Computational Theory of Haptic Perception	PE7
HEIZ	Ulrich Kaspar	Technische Universität München	DE	ASC3	Asymmetric Cluster Catalysis & Chemistry	PE4
HINRICHS	Kai-Uwe	Universität Bremen	DE	DARCLIFE	Deep subsurface Archaea: carbon cycle, life strategies, and role in sedimentary ecosystems	PE10
HIRSCH	Andreas	Friedrich-Alexander-Universität Erlangen-Nürnberg	DE	GRAPHENOCHEM	Large Scale Production, Cloning, Chemical Functionalization and Materials Applications of Graphene	PE5
HUCK	Wilhelm	The Chancellor, Masters and Scholars of the University of Cambridge	UK	INTERCOM	The Influence of Interfaces, Confinement and Compartmentalization on Chemical Reactions	PE4
IDELSOHN	Sergio	Centre Internacional de Métodes Numèrics en Enginyeria	ES	REALTIME	Real Time Computational Mechanics Techniques for Multi-Fluid Problems	PE8
INGUSCIO	Massimo	Laboratorio Europeo di Spettroscopia non Lineari	IT	DISQUA	Disorder physics with ultracold quantum gases	PE2
JACKSON	Andrew	Eidgenössische Technische Hochschule Zürich	CH	MFECE	Magnetostrophic Flow in Experiments and the Core of the Earth	PE10
KALLIADASIS	Serafim	Imperial College of Science, Technology and Medicine	UK	CIF	Complex Interfacial Flows: From the Nano- to the Macro-Scale	PE8
KAZHDAN	David	The Hebrew University of Jerusalem	IL	GLC	Langlands correspondence and its variants	PE1
KLEIN	Jacob	Weizmann Institute of Science	IL	HydrationLube	Hydration lubrication: exploring a new paradigm	PE4
KRAUSZ	Ferenc	Ludwig-Maximilians-Universität München	DE	4D Imaging	Towards 4D Imaging of Fundamental Processes on the Atomic and Sub-Atomic Scale	PE2

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KUIPERS	Johannes Alfonsius Maria	University of Twente	NL	Multi-scale flows	Multi-scale modeling of mass and heat transfer in dense gas-solid flows	PE8
KWIATKOWSKA	Marta Zofia	The Chancellor, Masters and Scholars of the University of Oxford	UK	VERIWARE	From Software Verification to Everywhere Verification	PE6
LABOURIE	François	Université Paris-Sud XI	FR	HighTeich	Higher Teichmüller-Thurston Theory: Representations of Surface Groups in PSL(n,R).	PE1
LINFIELD	Edmund Harold	University of Leeds	UK	TOSCA	Terahertz Optoelectronics - from the Science of Cascades to Applications	PE7
LIVERANI	Carlangelo	Università degli Studi di Roma Tor Vergata	IT	MALADY	Macroscopic Laws and Dynamical Systems	PE1
LOESER	François	Ecole Normale Supérieure	FR	NMNAG	New Methods in Non Archimedean Geometry	PE1
MAIER	John Paul	Universität Basel	CH	ElecSpecIons	Electronic spectra of cold, large interstellar ions	PE4
MANNERS	Ian	University of Bristol	UK	FUNCA	Functional Nanomaterials via Controlled Block Copolymer Assembly	PE5
MEIBOM	Anders	Museum National d'Histoire Naturelle	FR	BIOCARB	Carbonate Biomineralization in the Marine Environment: Paleo-climate proxies and the origin of vital effects	PE10
MEIJER	Gerard	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V.	DE	MolChip	A molecular laboratory on a chip	PE4
MEIJER	Egbert Willem	Technische Universiteit Eindhoven	NL	Supocosys	From Supramolecular Polymers to Compartmentalized Systems	PE5
MENTEN	Karl M.	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V.	DE	GLOSTAR	A Global View of Star Formation in the Milky Way	PE9
MIKHALKIN	Grigory	Université de Genève	CH	TROPGEO	Tropical Geometry	PE1
MILSTEIN	David	Weizmann Institute of Science	IL	novcat	Design of Novel Catalysis by Metal Complexes	PE5
MOREL	Jean-Michel	Ecole Normale Supérieure de Cachan	FR	Twelve Labours	Twelve Labours of Image Processing	PE1
NIELSEN	Jens	Chalmers Tekniska Högskola AB	SE	INSYSBIO	Industrial Systems Biology of Yeast and A. oryzae	PE8
O'HAGAN	David	The University Court of the University of St Andrews	UK	HorizonCF	New horizons in organo-fluorine chemistry	PE5
PARISI	Giorgio	Università degli Studi di Roma la Sapienza	IT	CriPheRaSy	Critical Phenomena in Random Systems	PE2
PARRINELLO	Michele	Università della Svizzera Italiana	CH	PUSHBOUND	Pushing the Boundaries of Molecular Dynamics Simulations	PE4
PASCHEREIT	Christian Oliver	Technische Universität Berlin	DE	GREENEST	Gas turbine combustion with Reduced EmissionNs Employing extreme Steam injection	PE8
PRATSINIS	Sotiris E.	Eidgenössische Technische Hochschule Zürich	CH	FlameNanoManufacture	Flame Aerosol Reactors for Manufacturing of Surface-Functionalized Nanoscale Materials and Devices	PE8
RARITY	John	University of Bristol	UK	QUOWSS	Quantum Optics in Wavelength Scale Structures	PE2
RITSCH-MARTE	Monika	Medizinische Universität Innsbruck	AT	catchIT	Coherently Advanced Tissue and Cell Holographic Imaging and Trapping	PE2
SADLER	Peter	The University of Warwick	UK	BIOINCMED	Bioinorganic Chemistry for the Design of New Medicines	PE5
SAGOT	Marie-France	Institut National de Recherche en Informatique et en Automatique	FR	SISYPHE	Species Identity and SYmbiosis Formally and Experimentally explored	PE6
SCHACHERMAYER	Walter	Universität Wien	AT	RIVAL	Risk and Valuation of Financial Assets: A Robust Approach	PE1
SCHÜTH	Ferdi	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V.	DE	POLYCAT	Polymeric catalysts and supports: A new paradigm for biomass processing	PE5
SELBERHERR	Siegfried	Technische Universität Wien	AT	MOSILSPIN	Modeling Silicon Spintronics	PE7
SHALEV	Aner	The Hebrew University of Jerusalem	IL	Words	Words and Waring type problems	PE1
SIRTORI	Carlo	Université Paris Diderot - Paris 7	FR	ADEQUATE	Advanced optoelectronic Devices with Enhanced QUAntum efficiency at THz frEquencies	PE3
STOICA	Peter	Uppsala Universitet	SE	SysTEAM	Systems and Signals Tools for Estimation and Analysis of Mathematical Models in Endocrinology and Neurology	PE7

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STRÖHER	Hans	Forschungszentrum Jülich GmbH	DE	POLPBAR	Production of Polarized Antiprotons	PE2
SZNITMAN	Alain-Sol	Eidgenössische Technische Hochschule Zürich	CH	RWPERCRI	Random Walks, Percolation and Random Interacements	PE1
TIELENS	Alexander	Universiteit Leiden	NL	PAHs	The Role of Large Polycyclic Aromatic Hydrocarbon molecules in the Universe	PE9
UDALSKI	Andrzej	Uniwersytet Warszawski	PL	OGLEIV	Optical Gravitational Lensing Experiment: New Frontiers in Observational Astronomy	PE9
VALENTINI	Riccardo	Centro Euro-Mediterraneo per i Cambiamenti Climatici S.c.a.r.l.	IT	AFRICA-GHG	The role of African tropical forests on the Greenhouse Gases balance of the atmosphere	PE10
VAN HULST	Niek F.	Institut de Ciències Fotòniques, Fundació Privada	ES	NanoAntennas	Nano-Optical Antennas for Tuneable Single Photon Super-Emitters	PE3
VAN LEEUWEN	Piet W.N.M.	Fundació Privada Institut Català d'Investigació Química (ICIQ)	ES	Nanosonwings	A new vision on nanocatalysts	PE8
VAN TENDELOO	Gustaaf	Universiteit Antwerpen	BE	COUNTATOMS	Counting Atoms in nanomaterials	PE5
VETTERLI	Martin	Ecole Polytechnique Fédérale de Lausanne	CH	SPARSAM	Sparse Sampling: Theory, Algorithms and Applications	PE7
WHITE	Simon	Max Planck Gesellschaft zur Förderung der Wissenschaften e.V.	DE	GALFORMOD	Galaxy formation models for the next generation of evolutionary and cosmological surveys	PE9
WIJERS	Ralph A. M. J.	Universiteit van Amsterdam	NL	AARTFAAC	Amsterdam-ASTRON Radio Transient Facility And Analysis Centre: Probing the Extremes of Astrophysics	PE9
ZIEGLER	Günter M.	Technische Universität Berlin	DE	SDModels	Structured Discrete Models as a basis for studies in Geometry, Numerical Analysis, Topology, and Visualization	PE1
ZUAZUA	Enrique	BCAM - Basque Center for Applied Mathematics	ES	NUMERIWAVES	New analytical and numerical methods in wave propagation	PE1

Panel structure

Physical sciences and Engineering

- PE1 Mathematical foundations
- PE2 Fundamental constituents of matter
- PE3 Condensed matter physics
- PE4 Physical and analytical chemical sciences
- PE5 Materials and synthesis
- PE6 Computer science and informatics
- PE7 Systems and communication engineering
- PE8 Products and process engineering
- PE9 Universe sciences
- PE10 Earth system science