



THE PICOSEC MC-NET PROJECT



PICOSEC : Training

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Goals of the ITN



- Provide training for young researchers in the field of detector development for research and applications.
- Offer young people opportunities to :
 - Develop scientific, technical, managerial, and soft skills;
 - Work in multidisciplinary and international environments.





Training Program



- Individual training (specific to each student):
 - Research program;
 - Local training in each institute (different for each student);
 - Participation in specific courses and/or conferences.
- Training organized by the Network
 - All students are expected to participate;
 - Open to students also from outside the network;
 - To start when most of students are recruited: June





Individual training

The Personal Career Development Plan:



- **At the beginning of the researcher's contract...**
 - the researcher will be assigned a main supervisor from the working team;
 - he/she will define with his/her supervisor a Career Development Plan;
 - » i.e. details the research and training objectives and milestone;
 - » to be reviewed regularly.
- **In the course of the contract:**
 - Regular meetings with his/her supervisor;
 - Writing of reports, making presentations for the network;
 - Presenting results at international conferences.





Career Plan Development



- Name of fellow:
- Department:
- Name of Supervisor:
- Date:

- **BRIEF OVERVIEW OF RESEARCH PROJECT AND MAJOR ACCOMPLISHMENTS EXPECTED (half page should be sufficient):**
- **LONG-TERM CAREER OBJECTIVES (over 5 years):**
- Goals:
- What further research activity or other training is needed to attain these goals?
- **SHORT-TERM OBJECTIVES (1-2 years):**
- Research results
 - Anticipated publications:
 - Anticipated conference, workshop attendance, courses, and /or seminar presentations:
- Research Skills and techniques:
 - Training in specific new areas, or technical expertise etc:
- Research management:
 - Fellowship or other funding applications planned (indicate name of award if known; include fellowships with entire funding periods, grants written/applied for/received, professional society presentation awards or travel awards, etc.)
- Communication skills:
- Other professional training (course work, teaching activity):
- Anticipated networking opportunities
- Other activities (community, etc) with professional relevance:
- Date & Signature of fellow: Date & Signature of supervisor





PicoSEC : Secondments



**Each student will spend at least 3 months
in partner institutes to exchange knowledge.**

Fellow ID	Host	Seconded to:	Research/training topics during secondment	Planned start date of secondment	Planned end date of secondment
ESR1	CERN	Kloé	Learn optical coupling and the concept of coupling optics;	M6	M9
ESR2	CERN	TU-Delft	Learn SiPM SPAD readout	M9	M12
ESR3	CERN	Kloé	Learn optical coupling and the concept of coupling optics;	M12	M15
ER1	CERN	Fibercryst	Learn crystal growth techniques and industrial aspects;	M20	M23
ESR4	TU-Delft	ST-I	Learn SiPM design and prod. in industry	M18	M21
ESR5	TU-Delft	LIP	Learn data processing	M27	M33
ESR6	DESY	LIP	Learn ASIC design	M12	M15
ESR7	DESY	UHEI	Learn PET detector integration	M24	M27
ESR8	Fibercryst	CERN	Learn scint. characterization, light transport & collection, interfacing with SiPM	M24	M27
ESR9	UHEI	LIP	Learn DAQ systems	M12	M15
ESR10	UHEI	DESY	Learn fast calorimetry	M6	M9
ER2	UHEI	TU-Delft	Learn SPAD developments & readout	M12	M15
ER3	UHEI	CERN	Learn optical coupling and test beam facilities	M36	M39





PicoSEC : Secondements



Fellow ID	Host	Seconded to:	Research/training topics during secondment	Planned start date of secondment	Planned end date of secondment
ESR11	Kloé	CERN	Learn scintillators characterisation, light transport and collection, interfacing with SiPM	M15	M18
ER4	Kloé	CERN	Learn scintillators characterisation, light transport and collection, interfacing with SiPM	M18	M21
ESR12	LIP	TU-Delft	Learn SPAD readout	M6	M9
ESR13	LIP	UHEI	Learn PET detector integration	M21	M24
ESR14	UNIMIB	SurgicEye	Image reconstruction, clinical integration, regulatory issues in medical device development	M30	M33
ESR15	UNIMIB	ST-I	Learn equipment for SiPM devices' design and production	M12	M15
ESR16	TUM	UHEI/ UNIMIB	Learn simulation of light transport in scintillators and SIPM response/ image reconstruction in PEM	M20/M30	M23/M33
ESR17	ST-I	UNIMIB	Learn scintillators, their characterization, light transport and collection, interfacing with SiPM	M21	M27
ESR18	SurgicEye	CERN/ UNIMIB	Learn scintillators., Monte-Carlo simulation of radiation detectors / image reconstruction in PEM	M12/M24	M15/M27





PicoSEC : Network training



7 scientific trainings :

The training dates are to be reviewed according to the recruitment progress.

	Specialized S & T training	WP	Lead Institution	Project Month
L1	Short courses on crystals and scintillators	1	CERN, FiberCryst	M4
L2	Short courses on laser lithography and diffractive optics	1	Kloé	M6
L3	Short courses on quantum detection, single-photon imaging, SiPMs, SPADs	2	TU-Delft	M11
L4	Short course on semiconductor devices, design and manufacturing	2	ST-I	M15
L5	SiPM-School with Hands-On	2	DESY	M18
L6	Short course on PET electronics and data acquisition	3	LIP	M24
L7	Short course on image processing	5	TUM, SurgicEye	M38





PicoSEC : Network training



4 management and administration trainings

	Management & Administration	WP	Lead Institution	Project Month
L8	Certification of medical products, Intellectual Property Rights (IPR), clinical studies, marketing and sales	1-5	TUM & SurgicEye	M12
L9	Lecture on management	1-5	ST-I	M30
L10	The route to market: how innovation moves from laboratory to product.	1-5	Fibercryst & Kloé	M33
L11	Intellectual Property Rights (IPR)	1-5	CERN	M36





PicoSEC : Network training



4 annual workshops combined with our annual network meeting



	Main training events & conferences	WP	Lead Institution	Project Month
WS1 V1	Workshop on Intraoperative Imaging and Navigation Solutions – from basic research to medical product; Visit of the Nuclear Medicine Department of the university hospital “Klinikum rechts der Isar”.	1-5	TUM & SurgicEye	M12
WS2 V2	Workshop on medical instrumentation Visit of “Heidelberger Ionenstrahl Therapie” (HIT)	1-5	UHEI	M22
WS3 V3	Workshop on detectors for High Energy Physics; Visit of CERN	1-5	CERN, UNIMIB	M36
WS4	Network workshop on PicoSEC-MCNet results	1-5	All	M48





PicoSEC : Training coordination



- Each training unit is defined by and provided at host institutes
- PicoSEC training coordinator needed:
 - Manages training program
 - Supports training hosts in organisation and selection of trainers and attendees





Student welcome events



- Propose to have a Student Welcome event during the first Network training in Lyon on scintillators in Mid-June 2012 (2 days and a half)

