



*“A horizon for hadron physics:
mastering challenges in a
globalized world”*

(HadronPhysicsHorizon - HPH)

Carlo Guaraldo

NuPECC Meeting - Edinburgh, 10-11 October 2014

Horizon 2020

Call: H2020-INFRAIA-2014-2015

Topic: INFRAIA-1-2014-2015

Type of action: RIA

Proposal number: 653088

Proposal acronym: HadronPhysicsHorizon

Duration in months: 36

Fixed keyword 1: NATURAL SCIENCES

Free keywords: structure and interactions of hadrons; quantum chromodynamics; quark-gluon plasma; interplay between theory and experiment; high-tech challenge; application challenge; outreach challenge

Proposal submission date: 18/08/2014 16:48 CET

WRITING COMMITTEE

to prepare the HPH proposal

Ulrich Wiedner, Bochum University - Germany Coordinator

Mauro Anselmino, Turin University - Italy Member

Frédéric Fleuret, CNRS/IN2P3 - France Member

Carlo Guaraldo, INFN-LNF - Italy Co-coordinator

Tord Johansson, Uppsala University - Sweden Member

Eugenio Nappi, Bari University - Italy Member

James Ritman, FZ-Jülich GmbH - Germany Member

**Networking
Activities and
Management
(10+1)**

**Transnational
Access
Activities
(6)**

**Joint
Research
Activities
(12)**

LIST OF WORK PACKAGES AND EC REQUESTED CONTRIBUTIONS

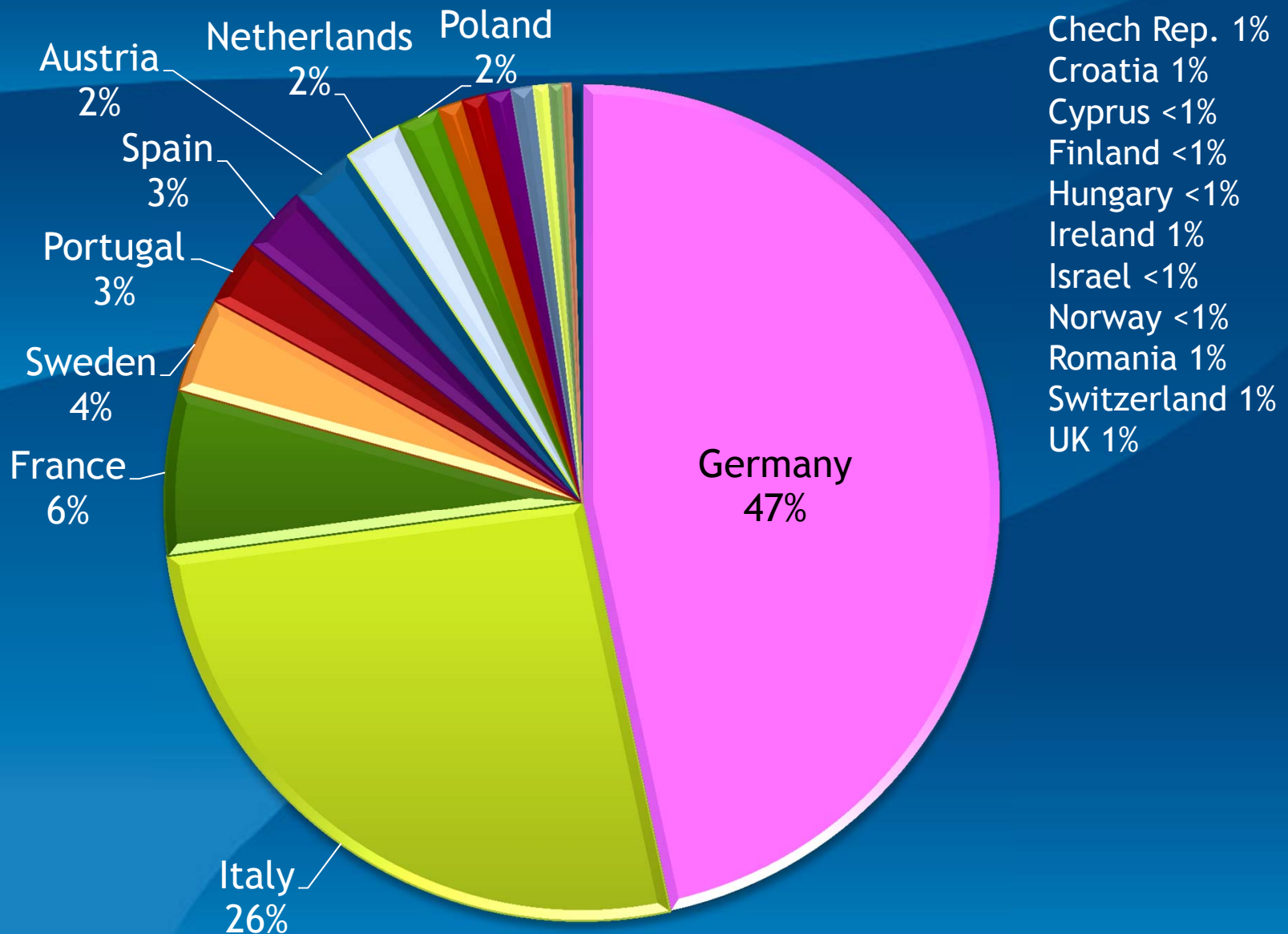
WP No	Activity	Lead Participant Short Name	Requested EC contribution
MANAGEMENT			
1	Project management (<i>MAN</i>)	RUB	980.000
TOTAL MAN			980.000
NETWORKING ACTIVITIES			
2	NA1-Hadron physics in non-perturbative QCD (<i>TheNet</i>)	UBO	297.000
3	NA2-In-Medium Properties of Antikaons, Hyperons and Charm Topical Studies (<i>IMPACTS</i>)	OeAW	280.000
4	NA3-Mastering the information challenge for experiments on QCD at FAIR (<i>FAIRnet</i>)	RUB	297.000
5	NA4-IDEas for High-Energy hadron and ion beam FIXed-target experiments (<i>IDHEFIX</i>)	CNRS	238.000
6	NA5-3D structure of the nucleon in momentum space: opening the next stage (<i>TMD-neXt</i>)	INFN	390.000

WP No	Activity	Lead Participant Short Name	Requested EC contribution
7	NA6-HadronS: study of the spectrum of hadrons made by light and charm quarks (<i>HS-HPH</i>)	INFN	255.000
8	NA7-Theoretical interpretation of ultrarelativistic pp, pA and AA collisions (<i>Thinco</i>)	CNRS	212.000
9	NA8-Study of heavy ion collisions with heavy flavours: the dawn of the precision era (<i>HICHEF</i>)	INFN	212.000
10	NA9-From Intrinsic Structure to Physics Beyond the Standard Model (<i>HPrecisionNet</i>)	UU	297.000
11	NA10-Hadron physics from lattice quantum field theory (<i>LatticeHadrons</i>)	TCD	297.000
TOTAL NETWORKING			2.775.000
TRANSNATIONAL ACCESS			
12	TA1-Transnational Access to UMainz-MAMI	UMainz	480.000
13	TA2-Transnational Access to FZJ-COSY	FZJ	320.000
14	TA3-Transnational Access to FBK-ECT*	FBK	540.000
15	TA4-Transnational Access to INFN-LNF	INFN	600.000

WP No	Activity	Lead Participant Short Name	Requested EC contribution
16	TA5-Transnational Access to GSI	GSI	120.000
17	TA6-Transnational Access to UBO-ELSA	UBO	300.000
TOTAL TRANSNATIONAL			2.360.000
JOINT RESEARCH ACTIVITIES			
18	JRA1-High-Precision measurements in a broad Energy Range - Compact Advanced Radiation Detector Systems (<i>HIPER-CARDS</i>)	INFN	400.000
19	JRA2-Joint Advanced Micropattern Gas Detectors (<i>JAM</i>)	UBO	650.000
20	JRA3-Cryogenic Polarized Targets Applications (<i>CryPTA</i>)	UBO	300.000
21	JRA4-Innovative cryogenically cooled target beams of nano-to micrometer-sized particles for hadron physics (<i>CryoJet</i>)	WWU	300.000
22	JRA5-Novel integration techniques for low-mass silicon tracking detectors (<i>NOVITEC</i>)	GSI	230.000
23	JRA6-Polarized Antiprotons (<i>PolAntiP</i>)	INFN	230.000
24	JRA7-Electric Dipole Moment Searches in Storage Rings (<i>EDM</i>)	RWTH	230.000

WP No	Activity	Lead Participant Short Name	Requested EC contribution
25	JRA8-Challenges for Next Generation DIS facilities (<i>NextDIS</i>)	CEA	250.000
26	JRA9-Study of Avalanche Micro-Pixel Photo Sensors under Exposure to Ionizing Radiation (<i>SiPM2020</i>)	GSI	225.000
27	JRA10-Multichannel high-precision digitizing electronics for applications in High-Energy Physics, Positron Emission Tomography (PET) and Radiation Protection (<i>MDE</i>)	WWU	650.000
28	JRA11-Towards Future Calorimeters (<i>NextCalor</i>)	JLU	300.000
29	JRA12-Diamond Detectors for Extreme Requirements (<i>DIADEM</i>)	GSI	120.000
TOTAL JOINT RESEARCH			3.885.000
GRAND TOTAL			10.000.000

EC REQUESTED CONTRIBUTION BY COUNTRY



PARTICIPANTS

- 55 organizations: Universities, Research Institutions, SME
 - from 19 countries:
 - 17 *Member States of the European Union*
 - 2 *Associated Countries (Israel, Norway)*
- moreover
- 163 Other Involved Institutions (OI) in the activities of the project, not receiving EC funds
 - from other 19 countries

OVERALL 38 COUNTRIES PARTICIPATING IN HPH

LIST OF PARTICIPANTS, THEIR ACTIVITIES AND LEADERSHIPS

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
1	Ruhr-Universität Bochum	RUB	DE	MAN NA3-FAIRnet JRA3-CryPTA
2	Österreichische Akademie der Wissenschaften	OeAW	AT	NA2-IMPACTS JRA1-HIPER-CARDS JRA4-CryoJet JRA2-JAM JRA9-SiPM2020
3	Universiteit Antwerpen	UAntwerpen	BE	NA5-TMD-neXt
4	European Organization for Nuclear Research	CERN	CH	JRA11-NextCalor
5	University of Cyprus	UCY	CY	NA9-HPrecisionNet
6	Fyzikalni ustav AV CR v.v.i.	IP-ASCR	CZ	JRA11-NextCalor
7	Univerzita Karlova V Praze	CUNI	CZ	JRA3-CryPTA JRA9-SiPM2020

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
8	Albert-Ludwigs-Universität Freiburg	ALU-FR	DE	NA5-TMD-neXt JRA2-JAM
9	Facility for Antiproton and Ion Research in Europe GmbH	FAIR	DE	NA3-FAIRnet
10	Forschungszentrum Jülich GmbH	FZJ	DE	NA1-TheNet TA2-FZJ-COSY JRA6-PolAntiP JRA7-EDM
11	GSI Helmholtzzentrum für Schwerionenforschung GmbH	GSI	DE	NA3-FAIRnet NA6-HS-HPH NA8-HICHEF TA5-GSI JRA4-CryoJet JRA5-NOVITEC JRA2-JAM JRA8-NextDIS JRA9-SiPM2020 JRA12-DIADEM

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
12	Heinrich-Heine-Universität Düsseldorf	HHUD	DE	JRA4-CryoJet
13	Johann Wolfgang Goethe Universität Frankfurt am Main	GUF	DE	JRA4-CryoJet JRA2-JAM
14	Johannes Gutenberg Universität Mainz	UMainz	DE	NA2-IMPACTS NA6-HS-HPH NA9-HPrecisionNet NA10- LatticeHadrons TA1-UMainz-MAMI JRA3-CryPTA JRA8-NextDIS JRA10-MDE
15	Justus-Liebig-Universität Gießen	JLU	DE	JRA11-NextCalor

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
16	Rheinische Friedrich-Wilhelms-Universität Bonn	UBO	DE	NA1-TheNet NA2-IMPACTS NA6-HS-HPH TA6-UBO-ELSA JRA3-CryPTA JRA2-JAM
17	Ruprecht-Karls-Universität Heidelberg	UHEI	DE	JRA10-MDE
18	Rheinisch-Westfälische Technische Hochschule Aachen	RWTH	DE	JRA7-EDM
19	Technische Universität München	TUM	DE	NA2-IMPACTS NA6-HS-HPH JRA1-HIPER-CARDS JRA2-JAM
20	Universität Regensburg	UREG	DE	NA10-LatticeHadrons
21	Eberhard Karls Universität Tübingen	EKUT	DE	NA5-TMD-neXt JRA8-NextDIS

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
22	Westfälische Wilhelms-Universität Münster	WWU	DE	JRA4-CryoJet JRA10-MDE
23	Universidad Autónoma de Madrid	UAM	ES	NA10-LatticeHadrons
24	Universidad Complutense de Madrid	UCM	ES	NA1-TheNet
25	Universidad de Murcia	UMU	ES	NA1-TheNet
26	Universidad del País Vasco/Euskal Herriko Unibertsitatea	UPV/EHU	ES	NA5-TMD-neXt JRA8-NextDIS
27	Universidade de Santiago de Compostela	USC	ES	NA4-IDHEFIX NA8-HICHEF JRA8-NextDIS
28	Universitat de Barcelona	UB	ES	NA2-IMPACTS

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
29	Centre National de la Recherche Scientifique	CNRS	FR	NA1-TheNet NA4-IDHEFIX NA5-TMD-neXt NA7-Thinco NA8-HICHEF NA9-HPrecisionNet JRA8-NextDIS
30	Commissariat à l'Energie Atomique et aux Energies Alternatives	CEA	FR	NA5-TMD-neXt JRA3-CryPTA JRA8-NextDIS JRA2-JAM
31	FiberCryst S.A.S.	FiberCryst	FR	JRA11-NextCalor
32	Ruder Boskovic Institute	RBI	HR	NA6-HS-HPH JRA3-CryPTA
33	Sveuciliste U Zagrebu	UNIZG	HR	JRA1-HIPER-CARDS

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
34	Magyar Tudományos Akadémia Wigner Fizikai Kutatóközpont	WignerRCP	HU	JRA2-JAM
35	Trinity College Dublin	TCD	IE	NA10-LatticeHadrons
36	Fondazione Bruno Kessler	FBK	IT	TA3-FBK-ECT* JRA1-HIPER-CARDS
37	Consiglio Nazionale delle Ricerche	CNR	IT	JRA1-HIPER-CARDS

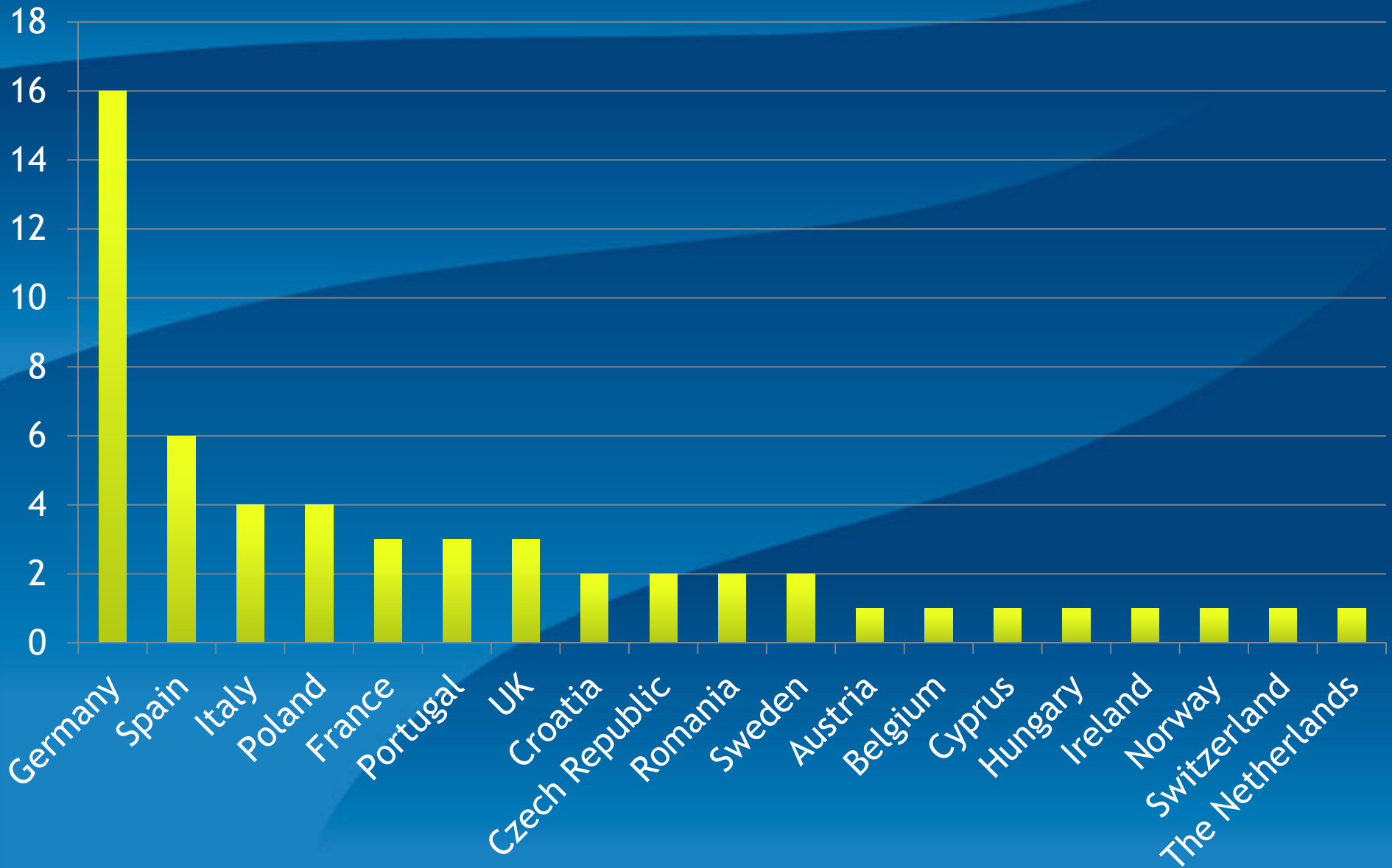
Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
38	Istituto Nazionale di Fisica Nucleare	INFN	IT	NA2-IMPACTS NA4-IDHEFIX NA5-TMD-neXt NA6-HS-HPH NA8-HICHEF NA9-HPrecisionNet NA10-LatticeHadrons TA4-INFN-LNF JRA1-HIPER-CARDS JRA2-JAM JRA4-CryoJet JRA5-NOVITEC JRA6-PolAntiP JRA7-EDM JRA8-NextDIS JRA9-SiPM2020
39	Politecnico di Milano	POLIMI	IT	JRA1-HIPER-CARDS

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
40	Rijksuniversiteit Groningen	RUG	NL	NA5-TMD-neXt JRA11-NextCalor JRA10-MDE
41	Universitetet i Oslo	UiO	NO	NA7-Thinco
42	Narodowe Centrum Badan Jadrowych	NCBJ	PL	NA4-IDHEFIX JRA4-CryoJet JRA8-NextDIS JRA2-JAM
43	Uniwersytet Śląski w Katowicach	USIL	PL	NA9-HPrecisionNet
44	Uniwersytet Jagiellonski	UJ	PL	JRA10-MDE
45	Uniwersytet Wroclawski	UWR	PL	NA7-Thinco
46	Instituto Superior Tecnico	IST	PT	NA9-HPrecisionNet

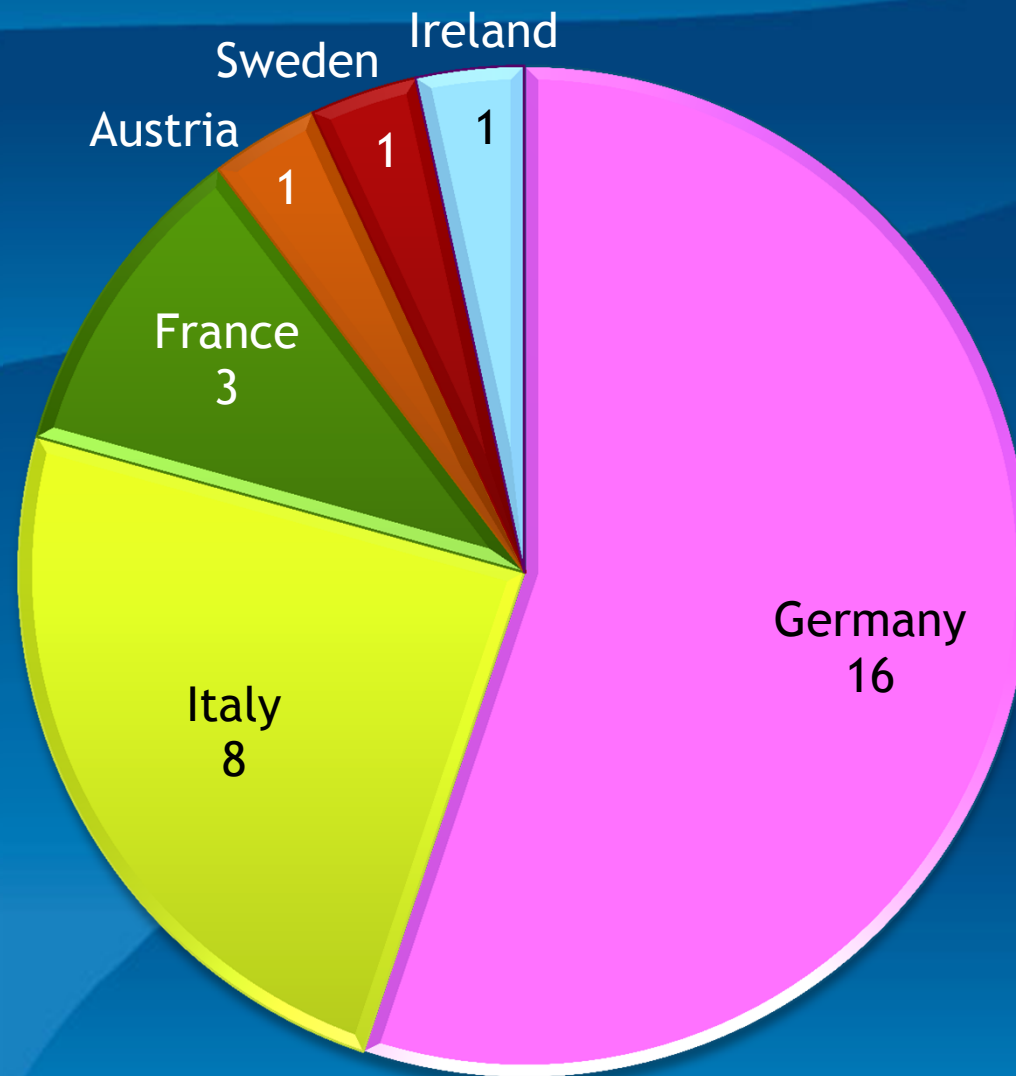
Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
47	Laboratorio de Instrumentacao e Fisica Experimental de Particulas	LIP	PT	NA4-IDHEFIX NA5-TMD-neXt JRA10-MDE
48	Universidade de Aveiro	UAVR	PT	JRA2-JAM
49	Institutul National De Cercetare - Dezvoltare Pentru Fizica Si Inginerie Nucleara "Horia Hulubei"	IFIN-HH	RO	JRA1-HIPER-CARDS JRA10-MDE
50	Institutul de Stiinte Spatiale	ISS	RO	JRA12-DIADEM
51	Lunds Universitet	ULUND	SE	NA1-TheNet
52	Uppsala Universitet	UU	SE	NA9-HPrecisionNet JRA4-CryoJet JRA10-MDE
53	The University of Edinburgh	UEDIN	UK	NA10-LatticeHadrons

Beneficiary n.	Beneficiary Legal Name	Beneficiary short name	Country Code	Activity and leadership (bold)
54	University of Birmingham	UBirmingham	UK	JRA8-NextDIS
55	University of Glasgow	UGlasgow	UK	NA6-HS-HPH JRA2-JAM

PARTICIPANTS BY COUNTRY



ACTIVITY LEADERSHIPS BY COUNTRY



**THANK YOU
FOR YOUR ATTENTION**

Carlo Guaraldo