

Coll 1: AK Weil MPIP-Collaboration

QI LU, KAIQI WU, YINGKE WU, and TANJA WEIL — Max Planck Institute for Polymer Research, Mainz, Germany

Coll 2: AMINO-Collaboration

SABINE ROCKENSTEIN¹, OLIVER ALEXANDER², FELIX EGUN², AURELIEN SÁNCHEZ¹, JOHN WALTERS³, ERIK ISELE³, KURTIS BORNE³, STEFANO SEVERINO⁴, LORENZO MAI⁴, SMITA GANGULY⁵, DANIEL ROLLES⁵, ARTEM RUDENKO⁵, ANDREAS PRZYSTAWIK¹, TIM LAARMANN¹, RIVER ROBLES³, AGOSTINO MARINELLI³, FERNANDO MARTÍN⁶, ROCIA BORRERO-VARILLAS⁴, MATTEO LUCCHINI⁴, MAURO NISOLI⁴, FEDERICO VISMARRA⁷, MAURIZIO REDUZZI⁴, ERIK MÅNSSON¹, OLIVIERO CANNELLI¹, TERRY MULLINS¹, VINCENT WANIE¹, ANDREA TRABATTONI¹, TARAN DRIVER³, JAMES CRYAN³, JON MARANGOS², and FRANCESCA CALEGARI¹ — ¹Deutsches Elektronen-Synchrotron DESY — ²Imperial College London — ³Linac Coherent Light Source LCLS — ⁴Politecnico di Milano — ⁵Kansas State University — ⁶Universidad Autónoma de Madrid — ⁷ETH Zürich

Coll 3: ATIQ SIEGEN-Collaboration

DORNA NIROOMAND¹, DANIEL BUSCH¹, KAIS REJAIBI¹, ERNST A. HACKLER¹, PATRICK HUBER¹, EIKE ISEKE^{2,3}, NILA KRISHNAKUMAR^{2,3}, MAX GLANTSCHNIG⁵, MICHAEL HARTMANN⁴, LEON DIXIUS⁴, SILKE AUCHTER⁵, ALEXANDER MEYER⁶, ZHAOQUN GUO⁶, GARIMA SARASWAT⁷, MATTHIAS BRANDL⁴, FRIEDRIKEL J. GIEBE^{2,3}, VADIM ISSAKOV⁶, MICHAEL JOHANNING⁷, and CHRISTOF WUNDERLICH¹ — ¹Department of Physics, School of Science and Technology, University of Siegen, 57068 Siegen, Germany — ²Physikalisch-Technische Bundesanstalt, Braunschweig, Germany — ³Laboratory of Nano and Quantum-Engineering, Hannover, Germany — ⁴Infineon Technologies AG, Neubiberg, Germany — ⁵Infineon Technologies Austria AG, Villach, Austria — ⁶Institut für CMOS Design, TU Braunschweig, 38106 Braunschweig, Germany — ⁷eleQtron GmbH, 57072 Siegen, Germany

Coll 4: BASE-Collaboration

BELA PETER ARNDT^{2,5}, BARBARA MARIA LATACZ^{3,4}, JULIA INES JÄGER^{1,2,3}, STEFAN ERLEWEIN^{1,2,3}, PHILIP GEISSLER⁴, TOMOKA IMAMURA^{7,8}, SIMON STAHL^{1,7,8}, TESSE ELBERT TIEMENS^{4,9}, FATMA ABBASS¹, NATAKALA DAKSHESH⁶, SATOSHI ENDO^{4,10}, MARCEL LEONHARDT¹, PETER MICKLE^{2,3}, JONATHAN MORGNER¹, DANIEL SCHWEITZER³, FREDERIK VOELKSEN¹, HÜSEYİN YILDIZ¹¹, KLAUS BLAUM², JACK DEVLIN⁶, YASUYUKI MATSUDA¹⁰, ANDREAS MOOSER², CHRISTIAN OSPELKAUS^{7,8}, WOLFGANG QUINT⁵, ANNA SOTER⁹, JOCHEN WALZ^{11,12}, YOSHIHIRO YAMAZAKI⁴, CHRISTIAN SMORRA¹, and STEFAN ULMER^{1,4} — ¹Heinrich Heine University, Düsseldorf, Universitätsstrasse 1, D-40225 Düsseldorf, Germany — ²Max-Planck-Institut für Kernphysik, Saupfercheckweg 1, D-69117, Heidelberg, Germany — ³CERN, Esplanade des Particules 1, 1217 Meyrin, Switzerland — ⁴RIKEN, Ulmer Fundamental Symmetries Laboratory, 2-1 Hirosawa, Wako, Saitama, 351-0198, Japan — ⁵GSI-Helmholtzzentrum für Schwerionenforschung GmbH, Planckstraße 1, D-64291 Darmstadt, Germany — ⁶Imperial College London, Exhibition Rd, South Kensington, London SW7 2AZ, United Kingdom — ⁷Institut für Quantenoptik, Leibniz Universität, Welfengarten 1, D-30167 Hannover, Germany — ⁸Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Germany — ⁹Eidgenössische Technische Hochschule Zürich, Rämistrasse 101, CH-8092 Zürich, Switzerland — ¹⁰Graduate School of Arts and Sciences, University of Tokyo, 3-8-1 Komaba, Meguro, Tokyo, 153-0041 Japan — ¹¹Institut für Physik, Johannes Gutenberg-Universität, Staudinger Weg 7, D-55099 Mainz, Germany — ¹²Helmholtz-Institut Mainz, Staudingerweg 18, 55128 Mainz

Coll 5: DFG Microstructure-Collaboration

MARKUS OLBRICH^{1,2}, PETR CEJPEK^{3,4}, HARIPRASATH GANESAN⁵, THEO PFLUG^{1,6}, ANDY ENGEL¹, DAVID RAFAJA³, STEFAN SANDFELD^{5,7}, ANDRÉS FABIÁN LASAGNI^{2,8}, and ALEXANDER HORN¹ — ¹Laserinstitut Hochschule Mittweida, Hochschule Mittweida, Technikumplatz 17, 09648 Mittweida — ²Institut für Fertigungstechnik, Technische Universität Dresden, George-Bähr-Str. 3c, 01069 Dresden — ³Institut für Werkstoffwissenschaft, Technische Universität Bergakademie Freiberg, Gustav-Zeuner-Str. 5, 09599 Freiberg — ⁴Department of Material Analysis, Institute of Physics of the Czech Academy of Sciences, Na Slovance 1999/2, 182 00 Prague 8 — ⁵Institute for Advanced Simulations - Materials Data Science and Informatics (IAS-9), Forschungszentrum Jülich, Wilhelm-Johnen-Str., 52428 Jülich — ⁶Carl Zeiss SMT GmbH, Carl-Zeiss-Promenade 10,

07745 Jena — ⁷RWTH Aachen, Fakultät für Georessourcen und Materialtechnik, Lehrstuhl für Datenwissenschaft und Informatik in der Materialwissenschaft, Aachen — ⁸Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS, Winterbergstr. 28, 01277 Dresden

Coll 6: HHG in glass-chip-Collaboration

LINDA OBERTI^{1,6,7}, AGATA AZZOLINI^{1,2,3}, GAIA GIOVANNETTI^{1,2}, OLIVIERO CANNELLI^{1,3}, SABINE ROCKENSTEIN^{1,2,4}, GUANGYU FAN^{1,3,5}, MD S. AHSAN^{1,6}, LORENZO COLAIZZI^{1,2,7}, ERIK MÅNSSON¹, NOAH TETTENBORN^{1,2}, DAVIDE FACCIALÀ⁶, FABIO FRASSETTO⁸, ANNA GABRIELLA CIRIOLO^{6,7}, DARIO WILLIAM LODI⁷, ALIA ASHRAF^{6,7}, CRISTIAN MANZONI⁶, REBECA MARTÍNEZ VÁZQUEZ⁶, MICHELE DEVETTA⁶, ROBERTO OSELLAME^{6,7}, LUCA POLETTI⁸, SALVATORE STAGIRA^{6,7}, CATERINA VOZZI⁶, TERRY MULLINS^{1,3}, VINCENT WANIE¹, ANDREA TRABATTONI^{1,9,10}, and FRANCESCA CALEGARI^{1,2,3} — ¹Centre for Free-electron Laser Science, Deutsches Elektronen-Synchrotron, Notkestr. 85, 22607 Hamburg, Germany — ²Physics Department, University of Hamburg, Luruper Chaussee 149, 22761 Hamburg, Germany — ³The Hamburg Centre for Ultrafast Imaging, University of Hamburg, Luruper Chaussee 149, 22761 Hamburg, Germany — ⁴Max Planck Institute for the Structure and Dynamics of Matter, Luruper Chaussee 149, 22761 Hamburg, Germany — ⁵Shanghai Key Lab of Modern Optical System, University of Shanghai for Science and Technology, Shanghai 2000093, China — ⁶Institute for Photonics and Nanotechnologies, Consiglio Nazionale delle Ricerche, piazza L. da Vinci 32, 20133 Milano, Italy — ⁷Physics Department, Politecnico di Milano, piazza L. da Vinci 32, 20133 Milano, Italy — ⁸Institute for Photonics and Nanotechnologies, Consiglio Nazionale delle Ricerche, via Trasea 7, 35131 Padova, Italy — ⁹Institute of Quantum Optics, Leibniz Universität Hannover, Welfengarten 1, 30167 Hannover, Germany — ¹⁰Cluster of Excellence PhoenixD (Photonics, Optics, and Engineering-Innovation Across Disciplines), Leibniz Universität Hannover, Welfengarten 1, 30167 Hannover, Germany

Coll 7: HITRAP-Collaboration

ZORAN ANDELKOVIC², SVETLANA FEDOTOVA², WOLFGANG GEITHNER², FRANK HERFURTH², NICOLAS KEHL^{1,2,4}, JONAS KÖDEL^{1,4}, WILFRIED NÖRTERSHÄUSER¹, NILS STALLKAMP^{2,3}, SERGIY TROTSENKO², GLEB VOROBYEV², and DIMITRIOS ZISIS^{1,4} — ¹Institut für Kernphysik, Technische Universität Darmstadt, Germany — ²GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany — ³Institut für Kernphysik, Goethe Universität Frankfurt, Germany — ⁴Helmholtz Graduate School for Hadron and Ion Research, Germany

Coll 8: ISOLTRAP-Collaboration

DINKO ATANASOV⁸, MAROUA BENHATCHI⁴, KLAUS BLAUM¹, PAUL FLORIAN GIESEL², ARTHUR JARIES¹, JONAS KARTHEIN⁶, DANIEL LANGE¹, YURI LITVINOV⁷, DAVID LUNNEY⁴, VLADIMIR MANEA⁴, LUKAS NIES³, SARAH NAIMI⁴, CHRISTOPH SCHWEIGER¹, LUTZ SCHWEIKHARD², and FRANK WIENHOLTZ⁵ — ¹Max-Planck-Institut für Kernphysik, Heidelberg, Germany — ²Universität Greifswald, Institut für Physik, Greifswald, Germany — ³European Organization for Nuclear Research (CERN), Geneva, Switzerland — ⁴Université Paris-Saclay, CNRS/IN2P3, IJCLab, Orsay, France — ⁵Technische Universität Darmstadt, Darmstadt, Germany — ⁶Texas A&M University, College Station, TX, USA — ⁷GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany — ⁸Studiecentrum voor Kernenergie SCK-CEN, Mol, Belgium

Coll 9: JetRIS Collaboration-Collaboration

JULIAN HINDERMANN^{1,2,3}, DIETER ACKERMANN⁴, SEBASTIAN BERNDT³, MICHAEL BLOCK^{1,2,3}, ALEXANDRE BRIZARD⁴, PREMADITYA CHHETRI³, ARNO CLAESSENS⁵, CHRISTOPH EMANUEL DÜLLMANN^{1,2,3}, JULIA EVEN¹², RAFAEL FERRER⁵, SARINA GELDHOF⁴, FRANCESCA GIACOPPO¹, BRIAN HARTIGAN^{3,12}, RAPHAEL HASSE³, FRITZ PETER HESSBERGER¹, HARSHITBABU HARSHITBABU⁵, FEDOR IVANDIKOV⁵, TOM KIECK^{1,2}, PETER KUNZ⁷, MUSTAPHA LAATIAOUI⁴, NATHALIE LECESNE⁴, ANDRÉS FELIPE LOPEZ⁴, VLADIMIR MANEA⁸, LOUIS VITAL MARCHAND⁴, ANDREW KISHOR MISTRY¹, ELODIE MORIN⁸, DANNY MÜNCHBERG^{1,2,3}, THORBEN NIEMEYER³, SEBASTIAN RAEDER¹, ELISABETH RICKERT^{1,2,3}, DANIEL RODRÍGUEZ RUBIALES¹¹, ANTOINE DE ROUBIN⁶, HERVÉ SAVAJOIS⁴, MATOU STEMMLER³, DOMINIK STUDER^{1,2}, KENNETH VAN BEEK^{1,9}, TIM VAN DE VENDEL^{1,12}, PIET VAN DUPPEN⁵, THOMAS WALTHER⁹, JESSICA WARBINEK¹⁰, KLAUS WENDT³, JANA WEYRICH^{1,2,3}, and ALEXANDER YAKUSHEV¹ — ¹GSI, Darmstadt, Germany — ²HIM, Mainz, Germany — ³JGU Mainz, Germany — ⁴GANIL, France — ⁵KU Leuven, Belgium — ⁶LPC Caen, France

— ⁷TRIUMF, Canada — ⁸IJCLab, France — ⁹TU Darmstadt, Germany — ¹⁰CERN, Switzerland — ¹¹Universidad de Granada, Spain — ¹²University of Groningen, Netherlands

Coll 10: Lawrencium Collaboration-Collaboration

BRANKICA ANDELIĆ^{1,3,5}, JULIAN AULER², MICHAEL BLOCK^{1,2,3}, SVEN BÖHLAND², PIERRE CHAUVEAU^{1,3}, BRADLEY CHEAL⁶, PREMADITYA CHHETRI^{2,4}, ARNO CLAESSENS⁴, ANTOINE DE ROUBIN⁴, CHARLIE DEVLIN⁶, JULIA EVEN⁵, RAFAEL FERRER⁴, FRANCESCA GIACOPPO^{1,3}, THOMAS GOIGOUX¹⁰, MANUEL J. GUTIÉRREZ^{1,3,7}, FRITZ-PETER HESSBERGER^{1,3}, FEDOR IVANDIKOV⁴, MAGDALENA KAJA², OLIVER KALEJA^{1,2,7}, TOM KIECK^{1,3}, EUNKANG KIM², SANDRO KRAEMER⁴, MUSTAPHA LAATIAOUI², JEREMY LANTIS², WERNER LAUTH², NATHALIE LECESNE⁸, ANDREW MISTY¹, IAIN MOORE⁹, TOBIAS MURBÖCK^{1,3}, DANNY MÜNZBERG^{1,2,3}, STEVEN NOTHHELFER^{1,2,3}, SEBASTIAN RAEDER^{1,3}, ANDREA RAGGIO⁹, EMMANUEL REY-HERME¹⁰, ELISABETH RICKERT^{1,2,3}, JEKABS ROMANS⁵, ELISA ROMERO-ROMERO², HERVÉ SAVJOLS⁸, JONAS SCHNEIDER², MATOU STEMMLER², BARBARA SULIGNANO¹⁰, PIET VAN DUPPEN⁴, MARINE VANDERBROUCK¹⁰, MATTHIAS VERLINDE⁴, ELISE VERSTRAELEN⁴, THOMAS WALTER¹¹, JESSICA WARBINEK^{1,2,3}, and KLAUS WENDT² — ¹GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany — ²Helmholtz-Institut, Mainz, Germany — ³Johannes Gutenberg-Universität, Mainz, Germany — ⁴KU Leuven, Celestijnenlaan 200D, Leuven, 3001, Belgium — ⁵University of Groningen, Zernikelaan 25, Groningen, 9747 AA, The Netherlands — ⁶University of Liverpool, Liverpool, L69 7ZE, United Kingdom — ⁷Universität Greifswald, Domstraße 11, Greifswald, 17489, Germany — ⁸GANIL, Bd Henri Becquerel, Caen, 14000, France — ⁹University of Jyväskylä, Jyväskylä, FI-40014, Finland — ¹⁰ESNT, IRFU, CEA, Université Paris-Saclay, Gif-sur-Yvette, 91191, France — ¹¹TU Darmstadt, Schlossgartenstraße 7, Darmstadt, 64289, Germany

Coll 11: LIBELLE-Collaboration

DIMITRIOS ZISIS^{1,2}, ZORAN ANDELKOVIC³, HENDRIK BODNAR¹, CARSTEN BRANDAU^{3,4}, CARLO FORCONI³, CHRISTOPHER GEPPERT⁵, JAN GLORIUS³, VOLKER HANNEN⁶, REGINA HESS³, CLAUDE KRANTZ³, JONAS KÖDEL¹, FINN KÖHLER¹, KRISTIAN KÖNIG^{1,2}, SERGEY LITVINOV³, YURI LITVINOV^{3,11}, BERND ALFRED LORENTZ³, JOHANN MEISNER⁷, KONSTANTIN MOHR^{1,2}, ZACHARY NUNNS¹⁰, WILFRIED NÖRTERSCHÄUSER^{1,2}, STEPHAN PASSON⁷, SIMON RAUSCH^{1,2,3}, JON ROSSBACH³, SHAHAB SANJARI³, RANGADEEP SINGH SIDHU¹⁰, UWE SPILLMANN³, NILS SIMON STALLKAMP^{3,9}, MARKUS STECK³, THOMAS STÖHLKER^{3,8}, RODOLFO SANCHEZ³, CHRISTIAN WEINHEIMER⁶, and DANYAL WINTERS³ — ¹Institut für Kernphysik, Technische Universität Darmstadt, Germany — ²Helmholtz Forschungszentrum für FAIR, Campus Darmstadt, Germany — ³GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany — ⁴I. Physikalisches Institut, Justus-Liebig-Universität Gießen, Germany — ⁵Forschungsreaktor TRIGA Mainz, Johannes Gutenberg-Universität Mainz, Germany — ⁶Institut für Kernphysik, Universität Münster, Germany — ⁷Physikalisch-Technische Bundesanstalt, Braunschweig, Germany. — ⁸Helmholtz-Institut Jena, Germany — ⁹Goethe-Universität Frankfurt am Main, Germany — ¹⁰Department of Physics, University of Surrey, Guildford, United Kingdom — ¹¹Institut für Kernphysik, Universität zu Köln, Germany

Coll 12: MIRACLS-Collaboration

OSAMA AHMAD¹, FRITZ BUCHINGER², CLARA BULLER³, CLARA KLINK³, LOUIS CROQUETTE², TILL FABRITZ⁴, CARLOS MARIO FAJADO ZAMBRANO¹, PAUL FLORIAN GIESEL⁵, HANNE HEYLEN³, JACK HUGHES⁷, FINN KÖHLER⁴, KRISTIAN KÖNIG^{4,8}, LOUIS-ALEXANDRE LALANNE⁹, DANIEL LANGE⁶, SIMON LECHNER³, ERICH LEISTENSCHNEIDER¹⁰, TIM LELLINGER⁶, FRANZISKA MAIER¹¹, STEPHAN MALBRUNOT-ETTENAUER¹¹, EDWARD MATTHEWS³, ABIGAIL MCGLONE¹², RONALDO MÉNDEZ-HERNÁNDEZ⁶, KONSTANTIN MOHR¹³, PATRICK MÜLLER⁴, LUKAS NIES³, WILFRIED NÖRTERSCHÄUSER^{4,8}, JULIAN PALMES⁴, PETER PLATTNER³, LAURA RENTH⁴, VENLA REPO¹⁴, ANTHONY ROITMAN², MARCO ROSENBUSCH⁵, CHRISTOPH SCHWEIGER¹, LUTZ SCHWEIKHARD⁵, JULIEN SPAHN⁴, LISS VASQUEZ RODRIGUEZ^{3,6}, MARKUS VILÉN³, JESSICA WARBINEK³, FRANK WIENHOLTZ⁴, JOSH WILSON¹⁵, ROBERT N. WOLF⁶, and ZIXUAN YUE¹⁵ — ¹KU Leuven, Leuven, Belgium — ²McGill University, Montreal, Canada — ³CERN, Meyrin, Switzerland — ⁴Technische Universität Darmstadt, Darmstadt, Germany — ⁵Universität Greifswald, Greifswald, Germany — ⁶MPIK Heidelberg, Heidelberg, Germany — ⁷University of Liverpool, Liverpool, United

Kingdom — ⁸Helmholtz Akademie Hessen für FAIR, Darmstadt, Germany — ⁹Centre National de la Recherche Scientifique — ¹⁰Lawrence Berkeley National Laboratory, Berkeley USA — ¹¹TRIUMF, Vancouver, Canada — ¹²University of Manchester, Manchester, United Kingdom — ¹³GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany — ¹⁴University of Jyväskylä, Jyväskylä, Finland — ¹⁵University of York, York, United Kingdom

Coll 13: NEEC-at-GSI-Collaboration

DARIUSZ BANAS¹, CARSTEN BRANDAU², FABRIZIO CARBONE³, RUI JUI CHEN⁴, SERGIO GARGULIO¹, JAN GLORIUS², ALEXANDRE GUMBERIDZE², REGINA HESS², CHRISTOPHOR KOZHUHAROV¹³, MICHAEL LESTINSKY², SERGEY LITVINOV², YURY LITVINOV^{2,5}, BERND ALFRED LORENTZ², ESTHER BABETTE MENZ^{2,5}, ALFRED MÜLLER⁶, WILFRIED NÖRTERSCHÄUSER⁷, ADRIANA PÁLFFY⁸, NIKOLAOS PETRIDIS², STEFAN SCHIPPERS⁶, DIETER SCHNEIDER⁹, UWE SPILLMANN², THOMAS STÖHLKER^{2,10}, MARTINO TRASSINELLI¹¹, and PHILIP WALKER¹² — ¹UJK Kielce, Poland — ²GSI, Darmstadt — ³EPFL, Lausanne, Switzerland — ⁴IMP Lanzhou, China — ⁵University of Cologne — ⁶JLU Gießen — ⁷TU Darmstadt — ⁸JMU Würzburg — ⁹LLNS, Livermore, USA — ¹⁰HI Jena — ¹¹CNRS INSP, Paris, France — ¹²University of Surrey, United Kingdom — ¹³retired

Coll 14: QD-E-QKD photon source-Collaboration

FRANCESCO BASSO BASSET¹, ALESSANDRO LANEVE², MICHELE B. ROTA², MATTIA BECCACECI², VALERIO VILLARI², THOMAS OBERLEITNER³, YORICK REUM⁴, TOBIAS M. KRIEGER³, QUIRIN BUCHINGER⁴, SAIMON F. COVRE DA SILVA³, GIUSEPPE RONCO², CHRISTIAN SCHIMPF⁵, ANDREAS PFENNING⁴, SANDRA STROJ⁶, SVEN HÖFLING⁴, TOBIAS HUBER-LOYOLA⁴, ARMANDO RASTELLI³, and RINALDO TROTTA² — ¹Department of Physics, Politecnico di Milano, 20133 Milan, Italy — ²Department of Physics, Sapienza University of Rome, 00185 Rome, Italy — ³Institute of Semiconductor and Solid State Physics, Johannes Kepler University, 4040 Linz, Austria — ⁴Technical Physics, University of Würzburg, 97074 Würzburg, Germany — ⁵Cavendish Laboratory, University of Cambridge, CB3 0HE Cambridge, United Kingdom — ⁶Forschungszentrum Mikrotechnik, FH Vorarlberg, 6850 Dornbirn, Austria

Coll 15: QNN-Collaboration

RAPHAEL BENZ, SEBASTIÁN ALEJANDRO MORALES RAMÍREZ, MICHAEL KAPPEL, DANIEL REIGEL, MAURIZIO TRIGILIA, LUIS WEISS, VINCENT BEGUIN, LEON LAYER, VIOLET RUF, and STEPHAN WELTE — 5. Physikalisches Institut, Center for Integrated Quantum Science and Technology and CZS Center QPhoton, Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart, Germany.

Coll 16: QUARTET-Collaboration

TIM REDELBACH — Institute of Physics, Mainz, Germany

Coll 17: QUBE 2 Konsortium-Collaboration

MICHAEL AUER^{1,3}, ADOMAS BALIUKA^{1,3}, ÖMER BAYRAKTAR^{4,5}, MORITZ BIRKHOLD^{1,3}, PAUL GAGERN⁸, ROLAND HABER⁷, MARIE-THERES HAHN⁸, BETTINA HEIM⁶, MARTIN HUTTERER⁶, JANKO JANUSCH⁶, LUKAS KNIPS^{1,2,3}, PASCAL KOBEL⁶, MARKUS KRAUSS⁷, NORBERT LEMKE⁶, CHRISTOPH MARQUARDT^{4,5}, FLORIAN MOLL⁸, CHRISTOS PAPADOPOULOS⁸, JONAS PUDELKO^{4,5}, BENJAMIN RÖDIGER⁸, CHRISTIAN ROUBAL⁸, JULIAN SCHARNAGL⁷, KLAUS SCHILLING⁷, CHRISTOPHER SCHMIDT⁸, BHARDWAJ SHASTRI⁷, MICHAEL STEINBERGER^{1,3}, KARINA SZYCH⁶, JOOST VERMEER^{4,5}, PAUL WAGNER⁸, and HARALD WEINFURTER^{1,2,3} — ¹Ludwig Maximilian University (LMU), Schellingstr. 4, D-80799 Munich, Germany — ²Max Planck Institute of Quantum Optics (MPQ), Hans-Kopfermann-Str. 1, D-85748 Garching, Germany — ³Munich Center for Quantum Science and Technology (MCQST), Schellingstr. 4, D-80799 Munich, Germany — ⁴Friedrich Alexander University of Erlangen-Nürnberg (FAU), Staudtstr. 7/B2, 91058 Erlangen — ⁵Max Planck Institute for the Science of Light (MPL), Staudtstr. 2, D-91058 Erlangen, Germany — ⁶OHB System AG, Manfred-Fuchs-Straße 1, D-82234 Weßling, Germany — ⁷Center for Telematics (ZfT), Magdalene-Schoch-Straße 5, D-97074 Würzburg, Germany — ⁸German Aerospace Center (DLR) IKN, Münchener Str. 20, D-82234 Weßling, Germany

Coll 18: SilverCubesAtSwissFEL-Collaboration

ALESSANDRO COLOMBO¹, NORA SIGRIST¹, THOMAS REICHENBACH², ANDRE AL HADDAD³, JOHAN BIELECKI⁴, CHRISTOPH BOSTEDT^{3,5}, SIMON DOLD⁴, THOMAS FENNEL⁶, FANNY GOV¹, CHRISTINA GRAF^{7,8}, LINDS HECHT¹, GEORG JAKOBS¹, MAXIMILIAN JOSCHKO^{7,8}, GREGOR KNOPP³, KATHARINA KOLATZKI¹, CHRISTIAN PELTZ⁶, THOMAS

PFEIFER⁹, SAFI RAFIE-ZINEDINE⁴, ANTOINE SARRACINI³, MARIO SAUPPE¹, FLORIAN SCHENK¹⁰, KIRSTEN SCHNORR³, ZHIBIN SUN³, PAUL TÜMMLER⁶, CARL FREDERIC USSLING¹, VANESSA WOOD¹⁰, XINHUA XIE³, MAKSYM YAREMA¹⁰, OLESYA YAREMA¹⁰, NURI YAZDANI¹⁰, HANKAI ZHANG³, MICHAEL MOSELER^{11,2}, DANIELA RUPP¹, and BERND VON ISSENDORFF¹¹ — ¹Laboratory for Solid State Physics, ETH Zurich, 8093 Zürich, Switzerland — ²Fraunhofer Institute for Mechanics of Materials IWM, 79104 Freiburg, Germany — ³Paul Scherrer Institut, 5232 Villigen, Switzerland — ⁴European XFEL, 22869 Schenefeld, Germany — ⁵Laboratory for Ultrafast X-ray Sciences, Institute of Chemical Sciences and Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), 1015 Lausanne, Switzerland — ⁶Institute of Physics, University of Rostock, 18051 Rostock, Germany — ⁷Department of Chemistry and Biotechnology, Darmstadt University of Applied Sciences, 64295 Darmstadt, Germany — ⁸Eu+ Institute of Nanomaterials and Nanotechnologies EUTINN, European University of Technology, European Union — ⁹Max-Planck-Institut für Kernphysik, 69117 Heidelberg, Germany — ¹⁰Institute for Electronics, ETH Zurich, 8049 Zurich, Switzerland — ¹¹Institute of Physics, University of Freiburg, 79104 Freiburg, Germany

Coll 19: Super-FRS Experiment-Collaboration

JAMIE HARKIN¹⁹, PATRICK ACHENBACH¹⁴, JASMIINA AHOKAS⁷, HELENA ALBERS¹⁵, DALER AMANBAYEV^{15,19}, CORRIGAN APPLETON⁵¹, LAURENT AUDOUIN⁹, SAMUEL AYET SAN ANDRES¹⁵, SOUMYA BAGCHI²², MARTIN BAJZEK¹⁵, SÖNKE BECK¹⁵, KARL-HEINZ BEHR¹⁵, SERGEY BELOGUROV⁶, JOSÉ BENLLIURE⁴⁴, GIOVANNA BENZONI²⁶, BERTRAM BLANK¹⁰, ANGELA BRACCO²⁶, ZIGA BRENCIC⁴³, CHRISTOPH CAESAR¹⁵, STEFANA CALINESCU⁴¹, DAVID CALONGE GONZÁLEZ⁴⁵, RITUPARNA KANUNGO², VOLHA CHARVIAKOVA³⁸, VRATISLAV CHUDOBÁ⁶, PAUL CONSTANTIN⁴², ANNA CORSI¹¹, MAÑOEL COUDER⁵², GIACOMO DE ANGELIS²⁷, TIMO DICKEL^{15,19}, FRANÇOIS DIDIERJEAN¹², ANTONIO DI NITTO²⁸, ALEXIS DIAZ-TORRES⁴⁹, VASYL DROZ¹⁵, HIROYUKI EKAWA²⁹, JUSTUS MATTHIES EDER¹⁵, JOACHIM ENDERS¹⁶, SAMUEL ESCRIG LÓPEZ⁴⁵, BOGDAN FORNAL³⁹, FRANCISCO GARCIA⁷, JÜRGEN GERL¹⁵, JÉRÔME GIOVINAZZO¹⁰, ALAIN GOASDUFF²⁷, TUOMAS GRAHN⁸, PAUL GREENLEES⁸, EMMA HAETTNER¹⁵, HENNING HEGGEN¹⁵, ALEXANDER HERLERT¹⁷, CHRISTINE HORNING¹⁵, KENTA ITAHASHI³⁰, NAOHITO IWASA³¹, MASAHICO IWASAKI³², ZENON JANAS⁴⁰, ARI JOKINEN⁸, NASSER KALANTAR-NAYESTANAKI³⁷, ANU KANKAINEN⁸, ERIKA KAZANTSEVA¹⁵, TAKAHIRO KAWABATA³⁰, BIRGIT KINDLER¹⁵, OLEG KISELEV¹⁵, RONJA KNÖBEL¹⁵, KOLFRAM KORTEN¹¹, DARIA KOSTYLEVA¹⁵, EKATERINA KOZLOVA¹⁵, SASKIA KRAFT-BERMUTH¹⁸, GABRIELLA KRIPKÓ-KONCZ⁴⁸, DEEPAK KUMAR²³, NEERAJ KURICHIANIL¹⁵, TERESA KURTUKIA-NIETO⁴⁵, NIKOLAUS KURZ¹⁵, ZHONG LIU⁴, YURI LITVINOV¹⁵, BETTINA LOMMEL¹⁵, RADOMIRA LOZEVA⁹, YUE MA³², ADAM MAJ³⁹, KRITI MAHAJAN¹⁹, ISRAEL MARDOR²⁵, NICOLAE MARIUS MARGINEAN⁴¹, SHOTA MATSUMOTO³³, CHIARA MAZZOCCHI⁴⁰, JIE MENG⁵, SARA MILLER⁶, ALI MOLLAEBRAHIMI¹⁷, IAIN MOORE⁸, IVAN MUKHA¹⁵, IVAN MUZALEVSKI⁶, TOMOFUMI NAGAE³³, MANAMI NAKAGAWA²⁹, SATOSHI N. NAKAMURA³¹, DANIEL RICARDO NAPOLI²⁷, MEETIKA NARANG³⁷, CHIARA NOCIFORO¹⁵, ANDREAS OBERSTEDT⁴², STEPHAN OBERSTEDT¹, ALEXANDRE OBERTELLI¹⁶, DAVID O'DONNELL⁵⁰, HOOI JIN ONG⁴, AKIRA OZAWA³⁴, RUDRAJYOTI PALIT²³, JUNCHEN PEI⁵, CRISTINA PETRONE⁴¹, MAREK PFÜTZNER⁴⁰, STEPHANE PIETRI¹⁵, WOLFGANG PLASS^{15,19}, JOSEF POCHODZALLA¹⁴, ZSOLT PODOLYAK⁴⁸, DIVYANG PRAJAPATI³, SIVAJI PURUSHOTHAMAN¹⁵, CHRISTOPHE RAPPOLD⁴⁵, MORITZ PASCAL REITER⁴⁸, SAMI RINTA-ANTILA⁸, ELENA ROCCO¹⁵, JOSE LUIS RODRIGUEZ SANCHEZ⁴⁶, HEIDI AYSE RÖSCH-KABADAYI¹⁶, PRATAP ROY²⁴, TAKEHIKO SAITO²⁹, CHRISOPH SCHEIDENBERGER^{15,19}, PHILIPP SCHWARZ¹⁵, RYOHEI SEKIYA³³, BRADLEY SHERRILL⁵³, HAIK SIMON¹⁵, MAKAR SIMONOV¹⁹, SURAJ KUMAR SINGH¹⁵, ANDREAS SOLDERS⁴⁷, BOGDAN SOWICKI³⁹, ALEXANDRA SPIRIDON⁴¹, DANA STATE⁴¹, ALEXANDRA IONELA STEFANESCU¹⁶, IONUT CATALIN STEFANESCU⁴¹, ANDRAS STOLZ⁵⁴, ZHIYU SUN⁴, JULIEN TAIEB¹³, HIROKAZU TAMURA³¹, YOSHIKI

TANAKA²⁹, ISAO TANIHATA³⁵, SATORU TERASHIMA⁴, ARUNIMA THEKKU VEETIL¹⁵, PETER THIROLF²⁰, HIROSHI TOKI³⁰, LIVIUS TRACHE⁴¹, EMANUELE VARDACI²⁸, VICTOR VARENTSOV¹⁷, MATJAZ VENCELJ⁴³, BERND VOSS¹⁵, FELIX WAMERS¹⁵, HELMUT WEICK¹⁵, MICHAEL WIESCHER⁵², HEINRICH WILSENACH²⁵, KATHRIN WIMMER²¹, MARTIN WINKLER¹⁵, PHILIP WOODS⁴⁸, XIAODONG XU⁴, TAKAYUKI YAMAGUCHI³⁶, XIAOFEI YANG⁵, ALEXANDREA ZADVORNAYA⁴⁸, REMCO ZEGERS⁵³, and JIANWEI ZHAO¹⁵ — ¹EC - JRC — ²TRIUMF — ³SMU — ⁴IMP CAS — ⁵Peking Univ. — ⁶Silesian Univ. — ⁷HIP — ⁸Univ. Jyväskylä — ⁹IJCLab — ¹⁰LP2i Bordeaux — ¹¹IRFU-CEA (Univ. Paris-Saclay) — ¹²IPHC Strasbourg — ¹³CEA DAM Île-de-France — ¹⁴JGU Mainz - KPH — ¹⁵GSi — ¹⁶TU Darmstadt - IKP — ¹⁷FAIR — ¹⁸TH Mittelhessen - IMPS — ¹⁹JLU Giessen — ²⁰LMU Munich — ²¹Univ. Cologne — ²²IIT (ISM) Dhanbad — ²³TIFR Mumbai — ²⁴VECC Kolkata — ²⁵HUI — ²⁶INFN Milano — ²⁷INFN LNL — ²⁸Univ. Napoli — ²⁹Riken - HighEnNuclPhysLab — ³⁰UOsaka — ³¹Tohoku Univ. — ³²RIKEN - MesonSciLab — ³³Kyoto Univ. — ³⁴Univ. Tsukuba — ³⁵RCNP Osaka — ³⁶Saitama Univ. — ³⁷Univ. Groningen - ESRIG — ³⁸NCBJ Warsaw — ³⁹IFJ PAN Krakow — ⁴⁰Univ. Warsaw - Inst. Exp. Phys. — ⁴¹FIN-HH — ⁴²ININOH - ELI-NP — ⁴³JSI — ⁴⁴IFIC - CSIC - Univ. Valencia — ⁴⁵IEM - CSIC — ⁴⁶UDC — ⁴⁷Uppsala Univ. — ⁴⁸Univ. Edinburgh — ⁴⁹Univ. Surrey — ⁵⁰UWS — ⁵¹LBNL — ⁵²Univ. of Notre Dame — ⁵³FRIB / MSU — ⁵⁴NSCL / MSU

Coll 20: TwoColorCDI-Collaboration

LINOS HECHT¹, ANDRE AL HADDAD², BJÖRN BASTIAN³, THOMAS M. BAUMANN⁴, JOHAN BIELECKI⁴, CHRISTOPH BOSTEDT^{2,5}, SUBHENDU DE⁶, ALBERTO DE FANIS⁴, SIMON DOLD⁴, THOMAS FENNEL⁷, FANNY GOY¹, CHRISTINA GRAF^{8,9}, ROBERT HARTMANN¹⁰, GEORG JAKOBS¹, MAXIMILIAN JOSCHKO^{8,9}, GREGOR KNOPP², KATHARINA KOLATZKI¹, SIVARAMA KRISHNAN⁶, BJÖRN KRUSE⁷, ASBJÖRN Ø. LAEGDSMAND¹¹, BRUNO LANGBEHN¹², SUDDHASATTWA MANDAL⁵, TOMMASO MAZZA⁴, MICHAEL MEYER⁴, CHRISTIAN PELTZ⁷, THOMAS PFEIFER¹³, SAFI RAFIE-ZINEDINE⁴, ANTOINE SARRACINI², MARIO SAUPPE¹, FLORIAN SCHENK¹⁴, KIRSTEN SCHNORR², BJÖRN SENFFTELEBEN⁴, KESHAV SISHODIA⁶, FRANK STIENKEMEIER¹⁵, ZHIBIN SUN², RICO MAYRO P. TANYAG¹⁶, PAUL TÜMMLER⁷, SERGEY USENKO⁴, CARL FREDERIC USSLING¹, VANESSA WOOD¹⁴, XINHUA XIE², MAKSYM YAREMA¹⁴, OLESYA YAREMA¹⁴, NURI YAZDANI¹⁴, HANKAI ZHANG², BERND VON ISSENDORFF¹⁵, YEVHENIY OVCHARENKO⁴, MARCEL MUDRICH¹¹, DANIELA RUPP¹, and ALESSANDRO COLOMBO¹ — ¹Laboratory for Solid State Physics, ETH Zurich, 8093 Zürich, Switzerland — ²Paul Scherrer Institut, 5232 Villigen, Switzerland — ³Wilhelm Ostwald Institute for Physical and Theoretical Chemistry, Leipzig University, 04103 Leipzig, Germany — ⁴European XFEL, 22869 Schenefeld, Germany — ⁵Laboratory for Ultrafast X-ray Sciences, Institute of Chemical Sciences and Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), 1015 Lausanne, Switzerland — ⁶Quantum Center of Excellence for Diamond and Emergent Materials and Department of Physics, Indian Institute of Technology Madras, Chennai 600036, India — ⁷Institute of Physics, University of Rostock, 18051 Rostock, Germany — ⁸Department of Chemistry and Biotechnology, Darmstadt University of Applied Sciences, 64295 Darmstadt, Germany — ⁹Eu+ Institute of Nanomaterials and Nanotechnologies EUTINN, European University of Technology, European Union — ¹⁰PNSensor GmbH, 81739 Munich, Germany — ¹¹Institute of Physics, University of Kassel, 34132 Kassel, Germany — ¹²Institute for Optics and Atomic physics, Technical University Berlin, 10623 Berlin, Germany — ¹³Max-Planck-Institut für Kernphysik, 69117 Heidelberg, Germany — ¹⁴Institute for Electronics, ETH Zurich, 8049 Zurich, Switzerland — ¹⁵Institute of Physics, University of Freiburg, 79104 Freiburg, Germany — ¹⁶Department of Chemistry, Aarhus University, 8000 Aarhus C, Denmark

Coll 21: Z Scan Abeer Salah-Collaboration

ABEER SALAH — National Institute of Laser Enhanced Sciences, Cairo University, Egypt