

INFORMAZIONI PERSONALI

Schillirò Francesco



fschilliro@oact.inaf.it



Skype francesco.schilliro

ESPERIENZA
PROFESSIONALE

01/06/2000–30/11/2001

Titolare Assegno di Ricerca

Consiglio Nazionale delle Ricerche - Istituto di Radioastronomia
Istituto di Radioastronomia - Antenna VLBI di Noto - C.da Renna Bassa, 96017 Noto (Italia)

- Software and instrumentation development for radio-interference mitigation techniques (RFI) implementation, participation to RFI Robust Receiver Design.
- Study of microwave technologies for the development of cryogenic components installed on radioastronomy receivers.
- Development of technologies for radio telescopes, as control and monitoring of functional and quality parameters, on-board telemetry and environmental metrology for performance optimization.
- Support to the Single Dish and VLBI observations, experience in the field of radioastronomical data processing and analysis.

Attività o settore Tecnologie per la Radioastronomia

03/12/2001–31/12/2004

Tecnologo III Livello Professionale

Consiglio Nazionale delle Ricerche - Istituto di Radioastronomia -
Antenna VLBI di Noto- Istituto di Radioastronomia - C.da Renna Bassa, 96017 Noto (Italia)

- Study of microwave technologies for the development of cryogenic components of receivers for radio astronomy. Participation to Sardinia Radio Telescope Group 4.
- Development of technologies for radio telescopes, as control and monitoring of operating and quality parameters, on-board telemetry and environmental metrology for performance optimization.
- Participation to Sardinia Radio Telescope Group 6.
- In charge of VLBI Technical Friend for the Noto VLBI Antenna.
- Support to the Single Dish and VLBI observations, experience in the field of radioastronomical data processing and analysis.
- Back-end software development and data analysis for the Single Dish radio astronomy.

Attività o settore Tecnologia per grandi strutture di Radioastronomia

01/01/2005–31/12/2014

Tecnologo III Livello Professionale

Istituto Nazionale Astrofisica - Antenna VLBI di Noto, Noto (Italia)

Together to the same activities from 2002 in CNR, the following activities were performed in INAF:

- From 2005 Activity of VLBI Technical Friend for Noto VLBI Antenna.
- From 2005 Responsible for Observations and Activity for Noto Radiotelescope.
- From 2005 Responsible for Maintenance Activity for Noto Radiotelescope.
- From 2005 Co-Responsible for divulgation activities for INAF - Noto site.
- From 2005 responsible for inventory of assets in charge to INAF Noto site.
- From 2007 to 2009 Co-I for PRIN INAF 2007 - Luminus Blue Variable Phenomenon: towards a better understanding of massive star evolution. - P.I. G. Umana.
- From 2007 to 2011 responsible for Security and Injuries prevention for INAF - Noto site.

- From 2010 to 2015 Advisor of Director for Istituto di Radioastronomia (Consigliere di Struttura)
- In 2010 Director of Project of 'Refurbishment of antenna driving system and azimuthal axis for Noto Radiotelescope'.
- From 2010 to 2013 CO-I at ITASEL (Italian Serach for Extraterrestrial Life) Project;
- In 2010 achieve Professional Qualification by examination of Tecnologo II Livello at INAF.**
- In 2012 Director of 'Project of Frequency Agility Installing in Noto Radiotelescope'.
- From 2012 participation to Prep-SKA Project as digital engineer for LOFAR and Best2 Harmonization.
- From 2012 participation to Medicina Aperture array Demonstrator (MAD) as digital engineer.
- From 2012 participation to Sardinia Aperture array Demonstrator (SAD) as digital engineer.
- From 2012 to 2014 National Coordinator for project TECNO INAF 2012 , 'Digital Platform Development for back end design of new generation SKA Aperture Arrays'.

01/01/2015–alla data attuale

Tecnologo III Livello Professionale

Istituto Nazionale Astrofisica - Osservatorio Astrofisico di Catania, Catania (Italia)

From 2013 participation to SKA Pre-construction phase in 3 Consortia:

- Low Frequency Aperture Array Consortium , WP Signal Processing as Responsible for digital equipment, as designer and producer of ITPM board. In particular were produced the following ITPM versions:

a). 1.0 and 1.1 Versions , funded by project '**Digital Platform Development for back-end design of new generation SKA Aperture Array**' , P.I. Francesco Schillirò

b). 1.2 Version , funded by program '*Fornitura di n. 25 esemplari di "ITPM Board" per l'elettronica di "digital processing" dei segnali in radiofrequenza nell'esperimento "Aperture Array Verification System 1 (AAVS1)"*' , **Funds Responsible Francesco Schillirò**

c). 1.5 Version funded by INAF Astronomia Industriale SKA e CTA, **Funds Responsible : Francesco Schillirò**

- SKA Dish Consortium Participation as LMC WP deputy leader, system engineer and software architect.

-SKA PAF AIP consortium as digital engineer and Responsible for calibration in PHAROS2 project.

-As digital engineer :

a). from 2013 participation to CASPER Consortium , Berkeley University

b). from 2013 participation in design of digital equipment for Sardinia Radio Telescope with ITPM and FPGA devices (SARDARA, SAD).

c). from 2013 research in image recognition algorithm for astronomy.

-In 2018 in charge as Chair for NI-ICU-ASW software for EUCLID (ESA).

-In 2018 in charge for member of Time Allocation Committee for radioastronomy INAF facilities.

-In 2018 begin of activity of research in Quantum Computing applications.

List of Publications:

-Front-Ends and Phased Array Feeds for the Sardinia Radio Telescope - A. Navarrini; **Schillirò F.**, et al; 32nd URSI GASS, Montreal, 19-26 August 2017

-PHAROS2- Phased Array Feed: Warm Section, Signal Transportation and iTPM Digital Backend A. Navarrini, , **F. Schillirò**, et al; PAF WORKSHOP 2017 Phased Array Feed Workshop Sydney, Australia November 14th TO 16th - ISBN 978 0 646 98052 2.

-Front-Ends and Phased Array Feeds for the Sardinia Radio Telescope A. Navarrini; **Schillirò F.**, et al; 32nd URSI GASS, Montreal, 19-26 August 2017

-The low frequency receivers for SKA 1-low: Design and verification - Benthem, Pieter; Gerbers, Marchei; Bij de Vaate, Jan Geralt; Wynholds, Stefan; Bast, Jeanette; Booler, Tom; Colgate, Tim; Crosse, Brian; Emrich, David; Hall, Peter; **Schillirò Francesco** and 36 coauthors; 2017 XXXIInd General Assembly and Scientific Symposium of the International Union of Radio Science

(URSI GASS), held Aug, 2017.

- **Auroral Radio Emission From Low-Mass Stars** - Ingallinera, A., **Schillirò, F.**; et al; EWASS Special Session 4 (2017): Star-planet interactions (EWASS-SS4-2017), held 26-30 June, 2017 in Prague, Czech Republic. Publication Date: 10/2017

- **The SKA-DISH Monitoring and Control System**; S. Riggi, **F. Schillirò**, et al; ICALEPCS2017, Barcelona, Spain JACoW Publishing ISBN: 978-3-95450-193-9 doi:10.18429/JACoW-ICALEPCS2017-TUPHA050;

- **Exploring the multifaceted circumstellar environment of the luminous blue variable HR Carinae** - Buemi, C., **Schillirò, F.**; et al; Monthly Notices of the Royal Astronomical Society, Volume 465, Issue 4, p.4147-4158 Publication Date: 03/2017;

- **Synergy SKA - CTA: Supernova remnants as cosmic accelerators** - Ingallinera, A., **Schillirò, F.**; et al; - Supernova 1987A:30 years later - Cosmic Rays and Nuclei from Supernovae and their aftermaths, Proceedings of the International Astronomical Union, IAU Symposium, Volume 331, pp. 345-350 Publication Date: 02/2017.

- **The Signal Processing Firmware for the Low Frequency Aperture Array** - Comoretto G., **Schillirò, F.**; et al; Journal of Astronomical Instrumentation, Volume 6, Issue 1, id. 1641015 Publication Date: 00/2017.

- **The Digital Signal Processing Platform for the Low Frequency Aperture Array: Preliminary Results on the Data Acquisition Unit** - Naldi G., **Schillirò, F.**; et al; Journal of Astronomical Instrumentation, Volume 6, Issue 1, id. 1641014 Publication Date: 00/2017.

- **The design of the local monitor and control system of SKA dishes** - **Schillirò, F.**; et al; Proceedings of the SPIE, Volume 9906, id. 99065V - Publication Date: 08/2016.

- **Automated detection of extended sources in radio maps: progress from the SCORPIO survey** - Riggi, S.; **Schillirò, F.**; et al, Monthly Notices of the Royal Astronomical Society, Volume 460, Issue 2, p.1486-1499 Publication Date: 08/2016

- **A real-time KLT implementation for radio-SETI applications** - Melis A., **Schillirò F.**, et al. Proceedings of the SPIE, Volume 9914, id. 99143D - Publication Date: 07/2016.

- **From MAD to SAD: The Italian experience for the low-frequency aperture array of SKA1-LOW** - Bolli, P., **Schillirò, F.** et al.; Radio Science, Volume 51, Issue 3, pp. 160-175 Publication Date: 03/2016.

- **Sardinia aperture array demonstrator** - Murgia, M.; **Schillirò F** et al, Proceedings of the SPIE, Volume 9145, id. 91454S, Publication Date: 07/2014;

- **Status of the LOCAL MONITOR AND CONTROL SYSTEM of SKA-DISH** - Riggi, **F. Schillirò**, et al; Proceedings of ICALEPCS2015, Melbourne, Australia - Pre-Press Release 23-Oct-2015 11:00MOPGF163;

- **The INAF contribution to the ASI Space Debris program: observational activities.** - Pupillo, G.; Salerno, E.; Bartolini, M.; Di Martino, M.; Mattana, A.; Montebugnoli, S.; Portelli, C.; Pluchino, S.; Schillirò, F.; Konovalenko, A.; Nabatov, A.; Nechaeva, M. Memorie della Società Astronomica Italiana Supplement, v.20, p.43 (2012)

- **Coordinated observations of PHEMU at radio wavelengths.** Pluchino, S.; Schillirò, F.; Salerno, E.; Pupillo, G.; Kraus, A.; Mack, K. H. - Memorie della Società Astronomica Italiana Supplement, v.20, p.29 (2012)

- **Photometric monitoring of Luminous Blue Variables** - Buemi, Carla; Distefano, Elisa; Leto, Paolo; Schillirò, Francesco; Trigilio, Corrado; Umana, Grazia; Bernabei, Stefano; Cutispoto, Giuseppe; Messina, Sergio - Proceedings of the 39th Liège Astrophysical Colloquium

- **Radio occultation experiments with INAF-IRA radiotelescopes.** Pluchino, S.; Schillirò, F.; Salerno, E.; Pupillo, G. Memorie della Società Astronomica Italiana Supplement, v.16, p.152 (2011)

- **A potential Italian radar network for NEO and space debris observations.** Pupillo, G.; Salerno, E.; Pluchino, S.; Bartolini, M.; Montebugnoli, S.; Di Martino, M.; Righini, S.; Schillirò, F.; Berizzi, F.; Dalle Mese, E.; Laghezza, F.; Konovalenko, A. - Memorie della Società Astronomica Italiana Supplement, v.16, p.59 (2011)

- **SETI-ITALIA 2008: On-going searches and future prospects** Montebugnoli, S.; Bartolini, M.; Bianchi, G.; Cosmovici, C.; Monari, J.; Orlati, A.; Perini, F.; Pluchino, S.; Pupillo, G.; Salerno, E.; Schillirò, F.; Zoni, L. - Acta Astronautica, Volume 67, Issue 11, p. 1350-1355.

-The Search for Water in Planetary and Exoplanetary Systems (The ITASEL Project) -

Cosmovici, C.; Pluchino, S.; Pogrebenko, S.; Montebugnoli, S.; Schillirò, F.; Bartolini, M. - "European Planetary Science Congress 2010, held 20-24 September in Rome, Italy;

The next steps in Seti-Italia science and technology

Montebugnoli, Stelio; Cosmovici, Cristiano; Monari, Jader; Pluchino, Salvatore; Zoni, Luca; Bartolini, Marco; Orlati, Andrea; Salerno, Emma; Schillirò, Francesco; Pupillo, Giuseppe; Perini, Federico; Bianchi, Germano; Tani, Mattia; Amico, Leonardo - Acta Astronautica, Volume 66, Issue 3, p. 610-616.

-Study of mutual occultation phenomena of the Galilean satellites at radio wavelengths

Pluchino, S.; Salerno, E.; Pupillo, G.; Schillirò, F.; Kraus, A.; Mack, K.-H.

Proceedings of the International Astronomical Union, IAU Symposium, Volume 269, p. 245-249

-Water masers in the Kronian system-

Pogrebenko, Sergei V.; Gurvits, Leonid I.; Elitzur, Moshe; Cosmovici, Cristiano B.; Avrukh, Ian M.; Pluchino, Salvatore; Montebugnoli, Stelio; Salerno, Emma; Maccaferri, Giuseppe; Mujunen, Ari; Ritakari, Jouko;

Molera, Guifre; Wagner, Jan; Uunila, Minttu; Cimo, Giuseppe; Schillirò, Francesco; Bartolini, Marco - International Astronomical Union, IAU Symposium, Volume 263, p. 147-150

-Spectral Line Measurements in Exceptionally Low SNR Achieved by virtue of the KLT (Karhunen-Loeve Transform)

Maccone, C.; Pluchino, S.; Schillirò, F. - Astronomical Society of the Pacific, 2009., p.453

-Space Debris Radar Experiments at the Medicina VLBI Dish-

Pupillo, G.; Montebugnoli, S.; Di Martino, M.; Salerno, E.; Bartolini, M.; Pluchino, S.; Schillirò, F.; Anselmo, L.; Portelli, C.; Konovalenko, A.; Nabatov, A. - Space Debris, Proceedings of the conference held 30

March - 2 April, 2009 in Darmstadt, Germany

-Status of the Sardinia Radio Telescope project-

Tofani, et al., Schillirò, F., . Proceedings of the SPIE, Volume 7012, article id. 70120F

-The role of viscosity in AGN outflows in relation to jet periodicities- Lanzafame, G.; Cassaro, P.; Schillirò, F.; Costa, V.; Belvedere, G.; Zappalà, R. A. - Astronomy and Astrophysics, Volume 482, Issue 2

-Radio occultation measurements of the lunar ionosphere-

Pluchino, S.; Schillirò, F.; Salerno, E.; Pupillo, G.; Maccaferri, G.; Cassaro, P. - Memorie della Società Astronomica Italiana Supplement, v.12, p.53 (2008)

-Space debris observational test with the Medicina-Evpatoria bistatic radar.

Pupillo, G.; Bartolini, M.; Cevolani, G.; Di Martino, M.; Falkovich, I.; Konovalenko, A. A.; Malevinskij, S.; Montebugnoli, S.; Nabatov, A.;

Pluchino, S.; Salerno, E.; Schillirò, F.; Zoni, L. - Memorie della Società Astronomica Italiana Supplement, v.12, p.44 (2008)

-The Engine of Outflows in Agn.: the Role of Physical Turbulent Viscosity.

Cassaro, P.; Schillirò, F.; Costa, V.; Belvedere, G.; Zappalà, R. A.; Lanzafame, G. - International Journal of Modern Physics D, Volume 17, Issue 09, pp. 1635-1640 (2008).

-La ionosfera lunare studiata per mezzo delle occultazioni della sonda SMART-1-

Pluchino, S.; Schillirò, F.; Maccone, C.; Maccaferri, G.; Derosa, C.; Firrone, C. M. - Astronomia. La rivista dell'Unione Astrofili Italiani (ISSN 0392-2308), N. 4, p. 20 - 25 (luglio-agosto 2007)

-The SRT receiving system and the receivers for the commissioning phase

Orfei, A.; Bolli, P.; Carbonaro, L.; Cremonini, A.; Cresci, L.; Idda, T.; Mariotti, S.; Monari, J.; Natale, V.; Nesti, R.; Nicotra, G.; Olmi, L.; Panella, D.; Pisanu, T.; Poloni, M.; Roda, J.; Scalambra, A.; Schillirò, F. - Memorie della Società Astronomica Italiana Supplement, v.10, p.34 (2006)

-Cryogenic Filters for RFI Mitigation in Radioastronomy Tuccari, G.; Caddemi, A.; Barbarino, S.;

Nicotra, G.; Consoli, F.; Schillirò, F.; Catalfamo, F. - VLBI Network on New Developments in VLBI Science and Technology. Held in Toledo (Spain) on October 12-15

Cryogenic Filter Development for RFI Mitigation in VLBI Receiver; Tuccari, G.; Nicotra, G.;

Schillirò, F.; Caddemi, A.; Barbarino, S.; Consoli, F. - Astronomical Society of the Pacific, 2003., p.P35

- 09/01/2017–15/01/2017 **SKA Software Architedture Workshop**
Software Engineering Institute- Carnegie Mellon University, Manchester (Regno Unito)
-Software Architecture Techniques and Tools
-Software Architecture Documentation
- 21/10/2014–23/10/2014 **Workshop di System Engineering**
INCOSE, Roma (Italia)
System Engineering
- 05/2010–06/2011 **'Fare sistema: innovare per crescere' -Corso di Formazione**
LUISS - Guido Carli, Roma (Italia)
Science and Space Project Management
Project Management
System Engineering
Communication
- 02/2012–03/2012 **Training OrCAD PCB Editor ² Cadence, OrCAD, CAM350, BluePrint, AutoVue**
Arterdas Italia, Catania (Italia)
- 04/2001–05/2001 **XIX Computational Mathematics School: Wavelets and Statistics**
Consiglio Nazionale delle Ricerche, Vico Equense (Italia)
- 1998 **Degree in Electronic Engineer**
Università degli Studi di Catania, Catania (catania)
- 1991 **High School Diploma - Liceo Scientifico**
Istituto Scientifico Statale 'Galileo Galilei, Catania (Italia)

COMPETENZE PERSONALI

Lingua madre italiano

Altre lingue

inglese

COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
Ascolto	Lettura	Interazione	Produzione orale	
B2	B2	B1	B1	B2

Livelli: A1 e A2: Utente base - B1 e B2: Utente autonomo - C1 e C2: Utente avanzato
 Quadro Comune Europeo di Riferimento delle Lingue

Competenze comunicative -From 2015 labor union delegate for OACT.

Competenze organizzative e gestionali
 Project Management:
 - In 2018 , in charge of Responsible for Administration Management in OACT.

- Funds Responsible (Responsabile Unico del Procedimento) , total budget up to 1 MEuro;
- Project Management
- WP leader for SKADC-LMC group;
- Management of Noto Radiotelescope Instrumentation and Working Group.

Competenze professionali

- Digital and System engineer: design of digital equipment architecture and product engineering for prototipal and pre-industrial stage.
 - Software Architect and development for control systems (for example big structures), data analysis as signal processing and CAD system modeling.
 - Project management as funds administration, procurement and legal specs, and working group planning.
- Research in High Performance Computing , as FPGA , GPU and chip based, and new Quantum Computing research.

Competenze digitali

AUTOVALUTAZIONE				
Elaborazione delle informazioni	Comunicazione	Creazione di Contenuti	Sicurezza	Risoluzione di problemi
Utente avanzato	Utente avanzato	Utente avanzato	Utente avanzato	Utente avanzato

Competenze digitali - Scheda per l'autovalutazione

OS: **WS, Linux**

Software: **C, C++, Python**

Development Environment: **Matlab, Labview and NI software**

Framework: **Tango**

CAD: **Cadence Suite, Autodesk Suite, ANSYS HFSS, VIVADO Suite,**

Project and System Management :**Cameo System Modeler, Project**

Firmware Language: **VHDL**

Firma

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