

45th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
SETI 1: SETI Science and Technology (1)

Author: Mr. Andrea Melis

INAF - Istituto Nazionale di AstroFisica, Italy, amelis@oa-cagliari.inaf.it

Dr. Raimondo Concu

INAF - Istituto Nazionale di AstroFisica, Italy, rconcu@oa-cagliari.inaf.it

Dr. Pierpaolo Pari

INAF, Italy, pari.pierpaolo@gmail.com

Dr. Claudio Maccone

International Academy of Astronautics (IAA) and Istituto Nazionale di Astrofisica (INAF), Italy,
clmaccon@libero.it

Dr. Andrea Possenti

INAF, Italy, possenti@oa-cagliari.inaf.it

Dr. Giuseppe Valente

National Institute for Astrophysics, Italy, valente@oa-cagliari.inaf.it

Dr. Carlo Migoni

INAF - Istituto Nazionale di AstroFisica, Italy, migoni@oa-cagliari.inaf.it

Mr. alessio trois

INAF - Istituto Nazionale di AstroFisica, Italy, alessio.trois@gmail.com

Dr. Valentina Vacca

INAF, Italy, vvacca@oa-cagliari.inaf.it

Dr. Silvia Casu

INAF - Istituto Nazionale di AstroFisica, Italy, silvia@oa-cagliari.inaf.it

Dr. Maria Ilaria Lunesu

Università di Cagliari, Italy, ilaria.lunesu@diee.unica.it

Dr. Alessandro Navarrini

INAF - Istituto Nazionale di AstroFisica, Italy, navarrin@oa-cagliari.inaf.it

Dr. Delphine Perrodin

INAF, Italy, delphine@oa-cagliari.inaf.it

Dr. Tonino Pisanu

National Institute for Astrophysics, Italy, tpisanu@oa-cagliari.inaf.it

Dr. Francesco Schillirò

National Institute for Astrophysics, Italy, f.schilliro@ira.inaf.it

A REAL-TIME FFT-KLT IMPLEMENTATION FOR SETI RESEARCH AT SARDINIA RADIO
TELESCOPE

Abstract

The Search for ExtraTerrestrial Intelligence (SETI) is a project whose goal is to find possible life signatures emitted (intentionally or unintentionally) by possible civilizations from other habitable planets. Historically, the narrow-band FFT approach has been used, since a quasi-monochromatic signal is the

most probable signal one would use to send a message to another world, that is in the case of intentionally-transmitted signals. Nevertheless, we could receive an unintentionally-transmitted signal as well. In that case, it would most certainly not be a quasi-monochromatic signal, but would probably be similar (with a wider bandwidth, of the order of MHz) to the signals that we use for conventional communications on Earth. The Kahrunen-Loeve Transform (KLT) is a powerful algorithm for such a kind of research. However, a real-time implementation of the KLT has thus far not worked due to a lack of technological resources. We describe a hardware-software infrastructure at the Sardinia Radio Telescope (SRT) that, in real-time, makes possible to perform the KLT in parallel to the FFT. Finally, we also present first results we achieved on field.