

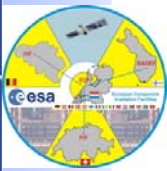
News from RADEF

**ESA/ESTEC Contract No. 18197/04/NL/CP:
“High Energy Heavy Ion Test Facility for
Component Radiation Studies”**

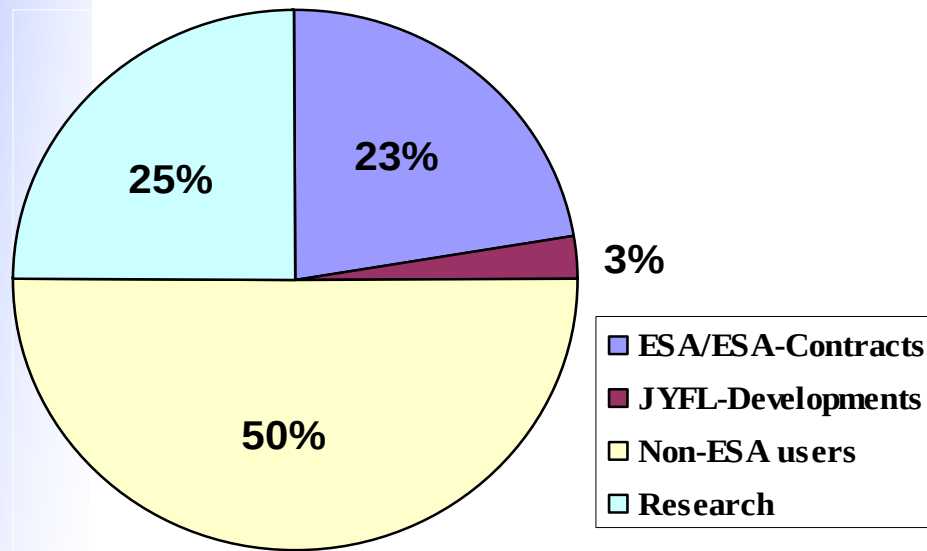
+ future plans...

Ari Virtanen, JYFL



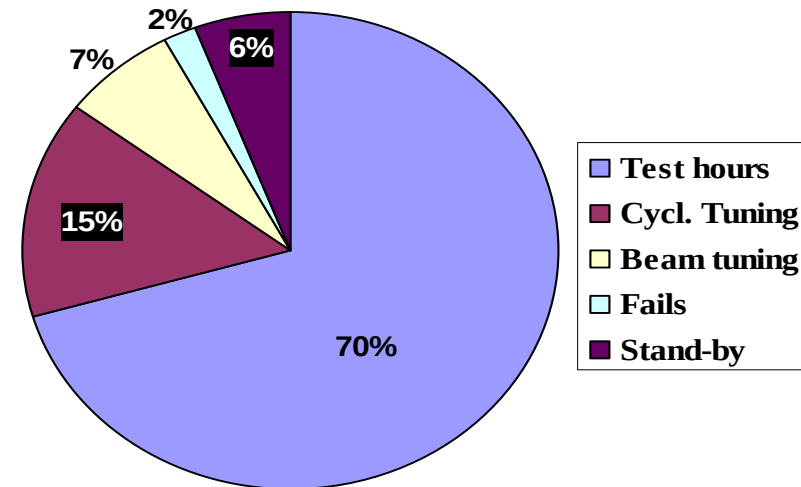


Beam hours for different users in 2006



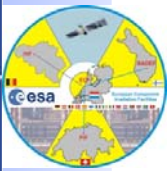
576 total beam hours

The use of beam hours



Test hours = beam on DUT
Cycl. tuning < 4 hours/campaign
Beam tuning < 1 hour/ion change
Fails = overtime tunings
Stand-by = beam on Faraday cup



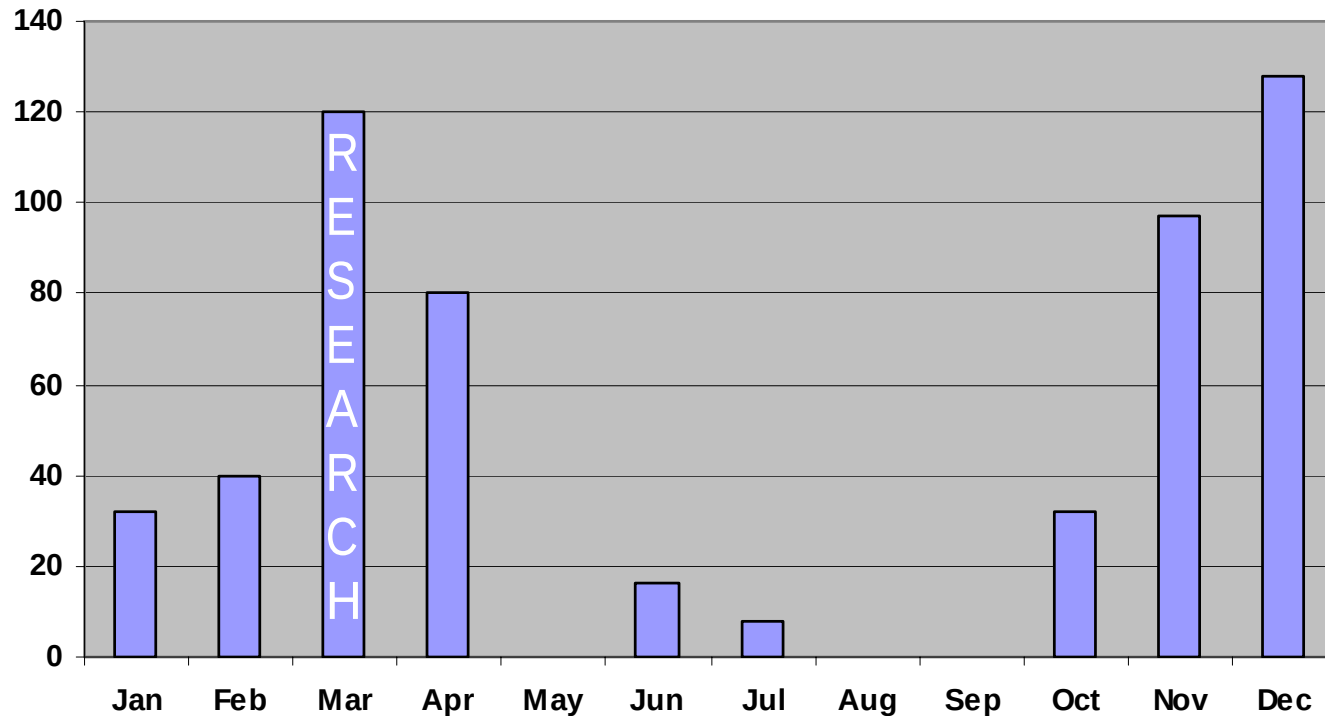


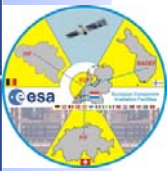
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Monthly use of beam time (9 campaigns)





Beam times allocated via proposal submitting procedure:

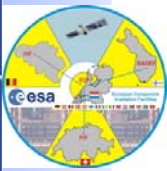
- **Electronic Energy Loss Measurements of Heavy Ions in Silicon 27-31/3/2006**
- Radiation hardness and performance testing of GaAs and HgI₂ detectors for “Solar Intensity X-ray and particle Spectrometer (SIXS)” on-board BepiColombo 20/4/2006

Publications in 2006

1. *The Use of Particle Accelerators for Space Projects*, A.Virtanen, Journal of Physics 41 (2006) 101-114
2. *Czochralski Silicon Detectors Irradiated with 24 GeV/c and 10 MeV Protons*, E. Tuovinen, J. Härkönen, P. Luukka, E. Tuominen, E. Verbitskaya, V. Eremin, I. Ilyashenko, A. Pirojenko, I. Riihimäki, A. Virtanen, K. Leinonen, Nucl. Instr. Meth. A 568 (2006) 83-88
3. *Electron Cyclotron Resonance Ion Source Related Development Work for the Heavy Ion Irradiation Tests*, H. Koivisto, P. Suominen, O. Tarvainen, A. Virtanen and A. Parkkinen, Rev. Sci. Instrum. 77, (2006) 03A316A.
4. *Linear Energy Transfer of Heavy Ions in Silicon*, A. Javanainen, T. Malkiewicz, J. Perkowski, W. H. Trzaska, A. Virtanen, G. Berger, W. Hajdas, R. Harboe-Sørensen, H. Kettunen, V. Lyapin, M. Mutterer, A. Pirojenko, I. Riihimäki, T. Sajavaara, G. Tyurin, H. J. Whitlow Proc. RADECS2006 Workshop, September 27-29, 2006, Athens, Greece, accepted to IEEE-TNS
5. *Radiation Effects Facility RADEF*, H. Kettunen, R. Harboe-Sørensen, I. Riihimäki, A. Javanainen, A. Pirojenko, K. Ranttila and A. Virtanen Proc. RADECS2006 Workshop, September 27-29, 2006, Athens, Greece
6. *Radiation Shielding Study of Advanced Data and Power Management Systems (ADPMS) housing for LEO and MEO Earth orbits of Carbon Fiber Reinforced Plastics (CFRP) with wolfram laminate using Geant4 Simulations and Experiments*, F. Garcia, K. Kurvinen, R. Orava, J. Heino, A. Virtanen, H. Kettunen and M. Tenhunen, Proc. RADECS2006 Workshop, September 27-29, 2006, Athens, Greece.





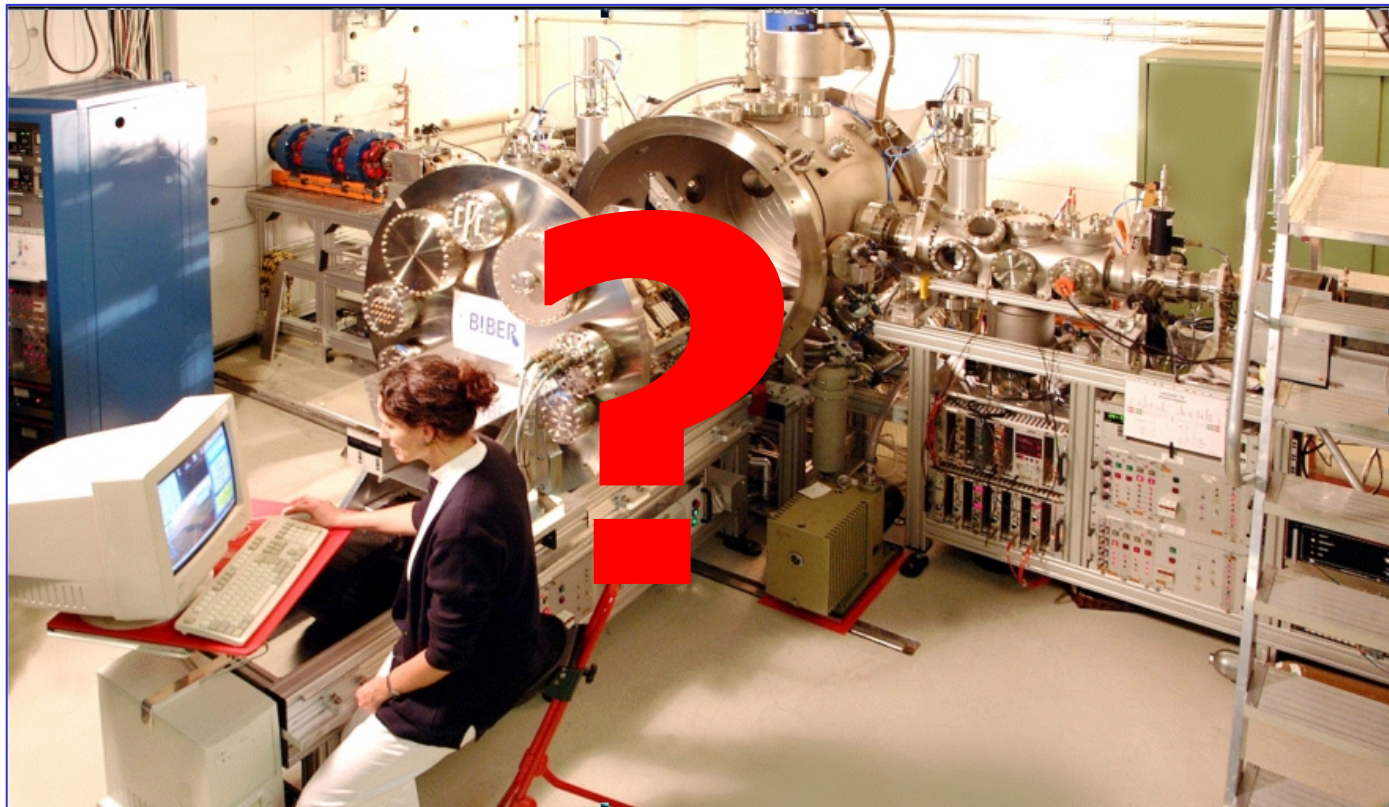


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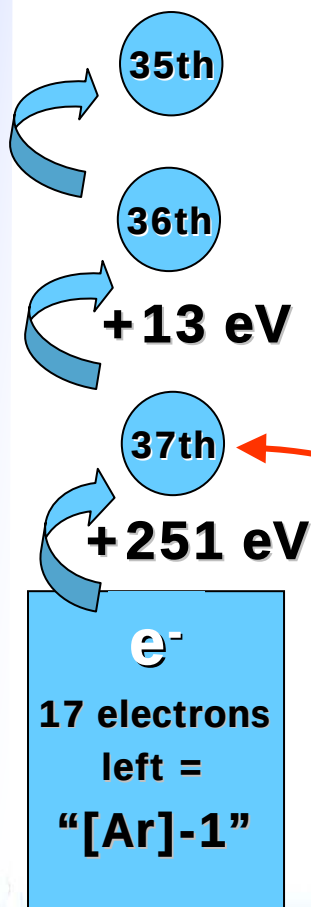
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Future2: New chamber 2007 → 2008





Future3: New 10.8 MeV/u cocktail 2007-08?



$A \text{ Ion }^{q+}$	E [MeV]	RSRIM [μm]	RBNL [μm]	St.power [SRIM]	LET [BNL]
$^{14}\text{N}^{4+}$	151	241.8	247.8	1.6	1.6
$^{28}\text{Si}^{8+}$	302	151.5	150.4	5.8	5.9
$^{56}\text{Fe}^{16+}$	604	117.1	119.3	17.1	17.1
$^{84}\text{Kr}^{24+}$	906	113.1	117.2	30.2	28.4
^{129}Xe	1402	102.4	113.3	57.5	50.5

$^{129}\text{Xe}^{37+}$ already observed!!!

