

<p>16 - ENEA Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile</p>	<p>Italy</p>	<p>ENEA is the Italian Agency for energy, new technologies and sustainable economic development. ENEA FRASCATI has been involved in the field of FELs since the very beginning of the FEL physics. Important results have been obtained and three members of the ENEA team have been awarded in the past with the FEL yearly prize (Alberto Renieri, Giuseppe Dattoli and Luca Giannessi). ENEA has a proven experience in undulator design and development.</p>	<ul style="list-style-type: none"> • Work Package leader for WP5. • Study of exotic undulator schemes • Study of undulator performance and their integration with start-to-end simulations (WP6). • Participation in WP1 and WP7, project management and CompactLight global integration.
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PARSIFEL is a set of analytical and semi-analytical functions developed to provide prompt scaling laws in describing the dynamics of several FEL processes.

PROMETEO is a 1-D multiparticle code, developed by P.L. Ottaviani (1941-2014), G. Dattoli & S. Pagnutti, aimed at simulating FEL dynamics: electron bunches travelling within the undulator, interact with their own co-propagating radiation. Different FEL devices are accounted for: oscillator, amplifier, SASE, within both linear and helical undulators, and the coherent generation of higher-order harmonics.

Both tools include effects of beam transverse emittance, noise in seed and in electron initial distribution, pulse propagation and diffraction effects.

more at <http://fel.enea.it/>

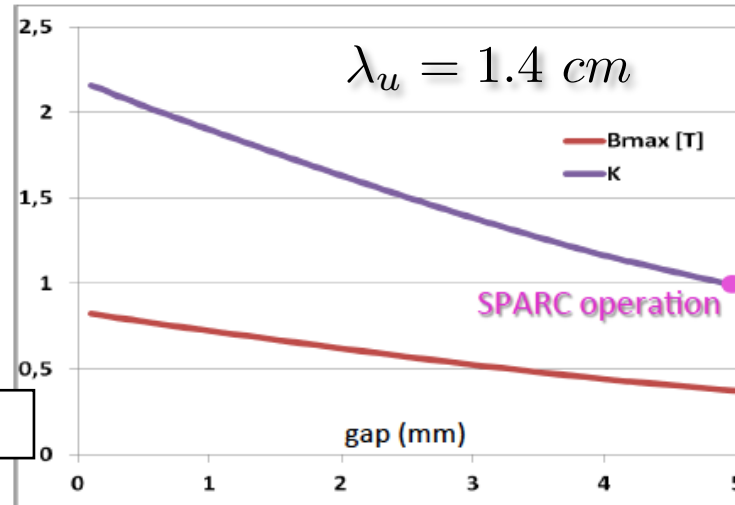
KYMA Δ undulator:
projected by ENEA Frascati,
constructed by Kyma Trieste,
tested on beam at SPARC_LAB

- DELTA like undulator

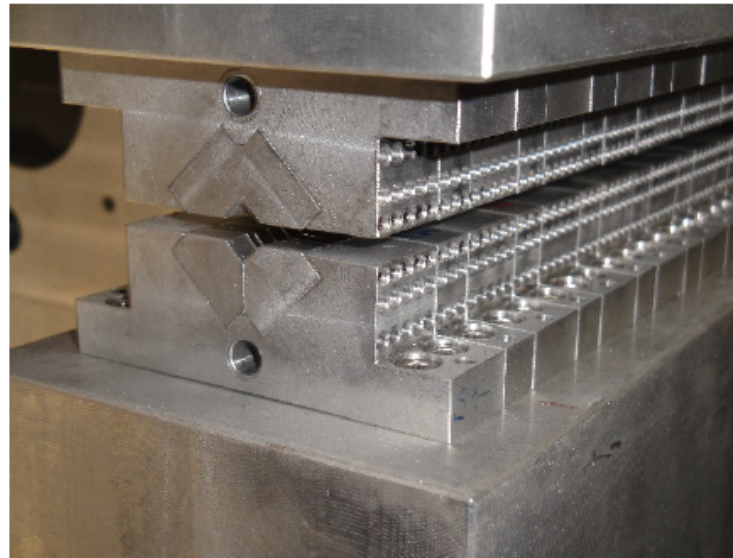
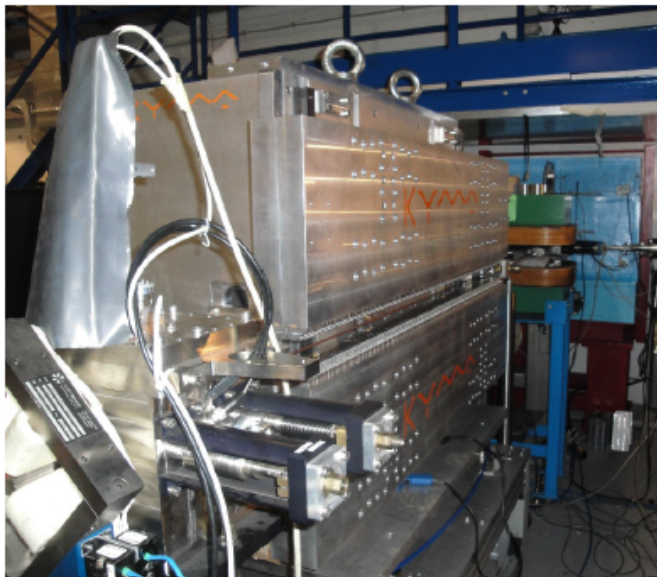
$\lambda_u = 1.4$ cm, gap $g = 5$ mm, $Br = 1.22$ T.

Undulator tested in two stage SASE-FEL:
630nm to 315 nm

from A.Petralia



Contributions to
the project
General
Coordination (WP1)



Contributions to
the project Global
Integration (WP7)

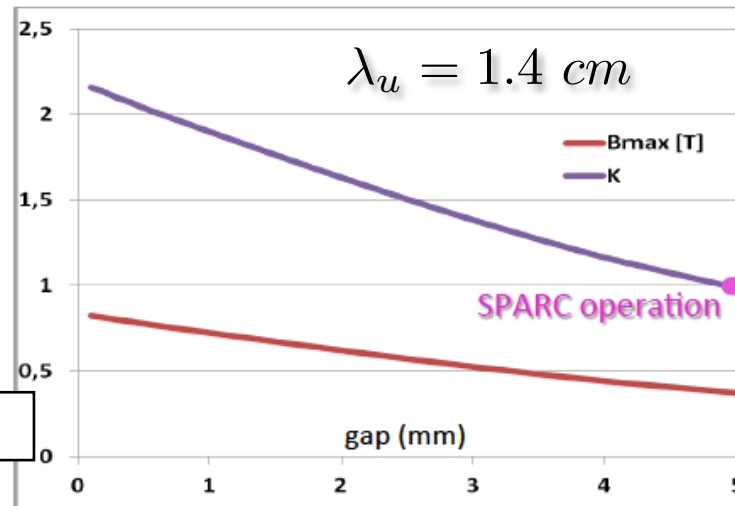
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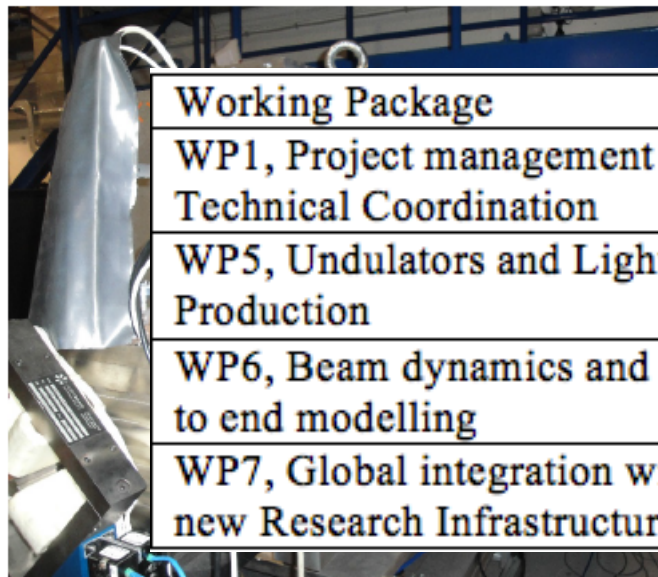
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Contributions to
the project
General
Coordination (WP1)



Working Package	Person Months
WP1, Project management and Technical Coordination	2
WP5, Undulators and Light Production	21
WP6, Beam dynamics and start to end modelling	6
WP7, Global integration with new Research Infrastructures	1

Contributions to
the project Global
Integration (WP7)