

# Overview of the ANR SP

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# Agence National de la Recherche

- ANR=Agence National de la Recherche
- Main grant giving body in France (but most research funded through other channels).
- This grant awarded through the “Young researchers” call.
- There are also calls for international collaboration (Fr-UK, Fr-US,...).

# Grant details

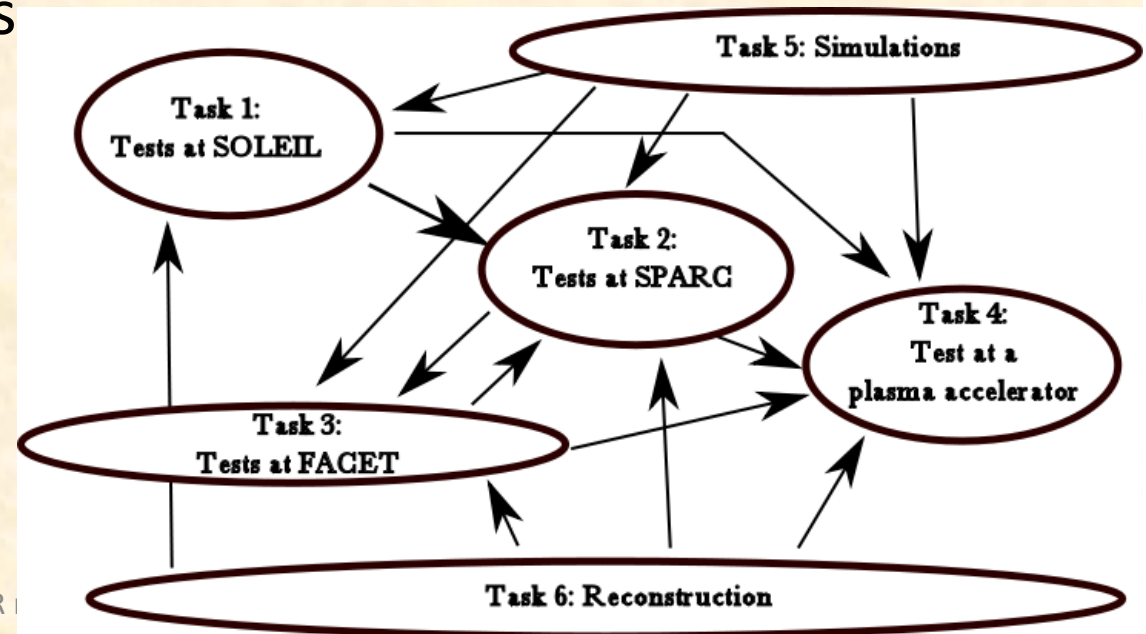
- Amount awarded: 430k€
  - including one post-doc
  - 140k€ equipment
  - 60k€ consumable
- Matched by 730k€ in LAL staff and infrastructures (60 months)  
=> full economic cost = 1 160k€
- Duration: 36 months (started 1 December 2012)
- 7 work packages.

# Aims

- Perform an extensive study of Smith-Purcell in an “easy” wavelength range.
- Validate/improve the theoretical model based on this study to make accurate simulations.
- Use the validated model to build a single shot detector.
- Use these measurements to reconstruct the longitudinal profile of the bunch.
- Extend the study to other (more difficult) wavelength ranges.
- Finally apply the result of the studies to a laser-driven plasma accelerator.

# Work packages

- WP1: Tests at SOLEIL (easy?) wavelength range.  
*Talks by Marie, Stéphane and Joanna*
- WP2: Tests at SPARC (more difficult)  
*Talk by Enrica and Flavio*
- WP3: Tests at FACET (benefit from existing infrastructures)  
*Talks by George and Ivan*
- WP4: Tests at a laser-driven driven plasma accelerator.  
*Talk by Brigitte and Frédéric*
- WP5: Theory/Simulations  
*(Talk by Ivan)*
- WP6: Reconstruction.
- WP7: Outreach  
*Talk by Joanna and Nicolas*



# Timeline

N°	Nom de la tâche	2012		Tri 1, 2013			Tri 3, 2013			Tri 1, 2014			Tri 3, 2014			Tri 1, 2015			Tri 3, 2015			Tri 1, 2016
		Sep	Nov	Jan	Mar	Mai	Jul	Sep	Nov	Jan	Mar	Mai	Jul	Sep	Nov	Jan	Mar	Mai	Jul	Sep	Nov	Jan
1	Task 1: Tests at SOLEIL			█			█			█			█			█			█			█
2	Task 2: Prepare tests at SPARC			█			█			█			█			█			█			█
3	Task 2b: Tests at SPARC			█			█			█			█			█			█			█
4	Task 4: Prepare test at a laser driven plasma accelerator			█			█			█			█			█			█			█
5	Task 4b: Tests at a laser driven plasma accelerator			█			█			█			█			█			█			█
6	Task 3: Tests at FACET			█			█			█			█			█			█			█
7	Task 5: Simulations			█			█			█			█			█			█			█
8	Task 6: Reconstruction techniques			█			█			█			█			█			█			█
9	Task 7: Outreach			█			█			█			█			█			█			█
10	Project management			█			█			█			█			█			█			█

- Test at one facility/year
- And in parallel test at FACET and work on theory/reconstruction.

# Outlook

- Challenging but very interesting work to be done.
- Referee's comment:  
“The project is a bit risky but it is certainly first class science”
- A lot of work to be done in the coming 3 years!