



The European Research Council

My ERC Starting Grant Nov. 2010 - Oct. 2015

“Novel Materials and Extreme Conditions to Open
New Frontiers in Heavy Fermion Physics”

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IMR, Tohoku University
CEA-Grenoble, France



My background

- **2000** **PhD degree at Osaka Univ.**
- **2000-2002** **Postdoc at CEA-Grenoble** (フランス原子力庁)
- **2002-2007** **Assistant Prof. at IMR, Tohoku Univ.**
- **2007-** **Researcher at CEA-Grenoble**
- **2010-2015** **My ERC project (ERC starting grant 2009)**
- **2012-** **Professor at IMR, Tohoku Univ.**

Subject Condensed Matter Physics
 Magnetism and Superconductivity on Heavy Fermion System

Awards IUPAP-C5, Young Scientists Prize (2008)
 “Discovery of ferromagnetic superconductivity on URhGe”

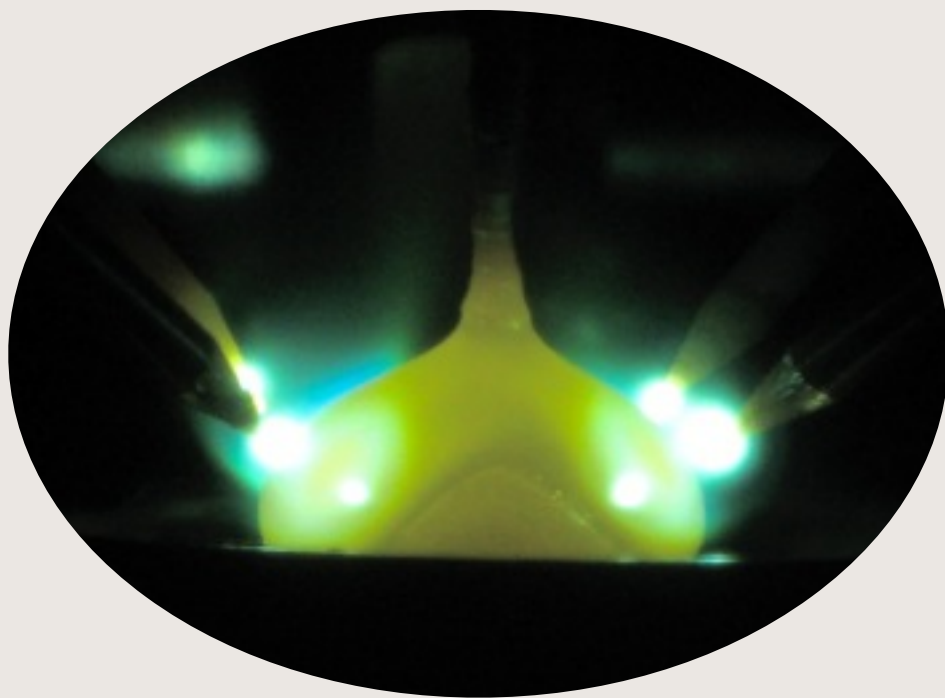
Research Activity and My ERC starting grant project

European Research Council

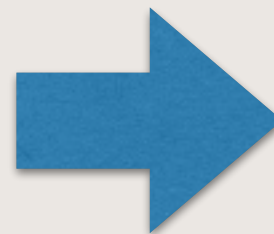


- New materials and extreme conditions
- New phenomena on superconductivity and magnetism

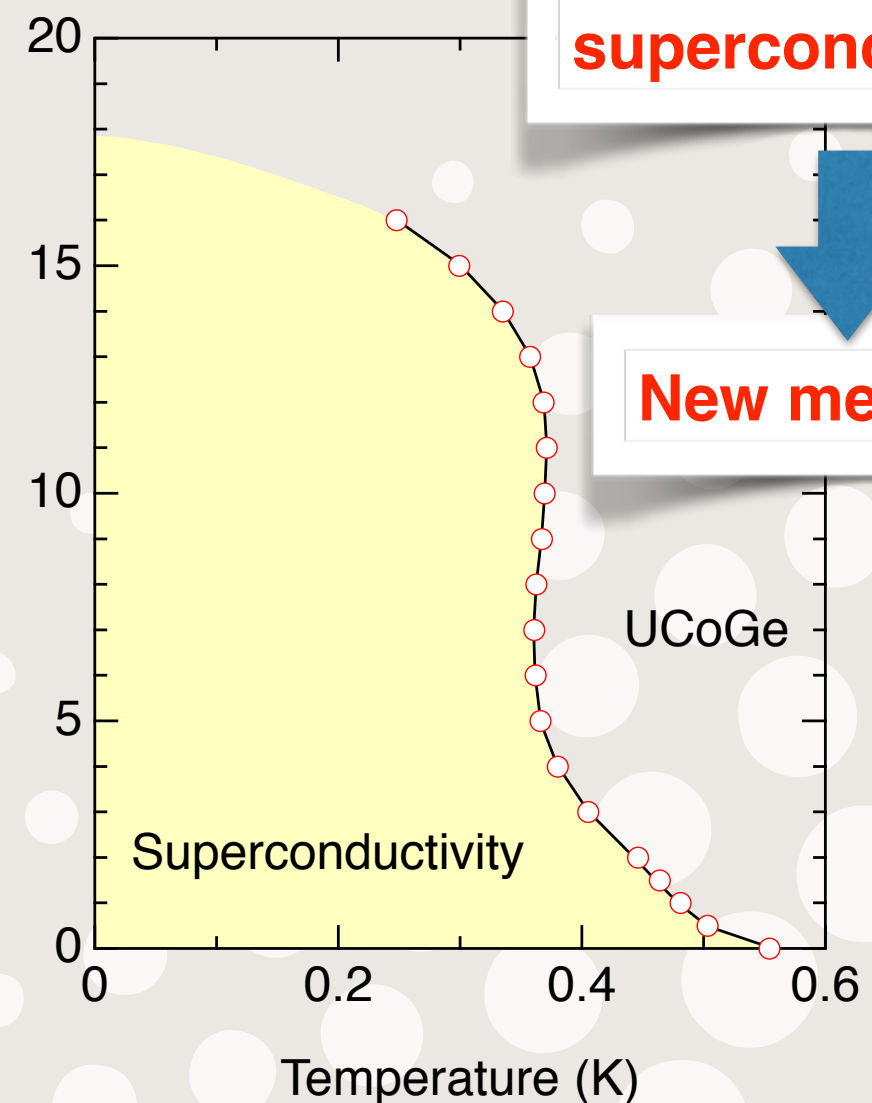
Heavy Fermion Physics



Single crystal growth of new materials



Upper Critical Field (T)



**Field-reinforced
superconductivity**



New mechanism

What will the grant mean to me ?

European Research Council



- **Reason to apply**
 - strong motivation for scientific targets
 - grant for young scientists to be independent (2-7 years after PhD, any nationality)
 - big budget 1.5 million € (~1.7 億円, comparable to Kiban-S in KAKENHI)
- **Difficulty**
 - 12 + 19 pages of proposal in English
 - competitive (success rate: 10%)
- **Benefit**
 - focus on my research with ambition
 - establish my team of heavy fermion physics in France
 - strong interaction between Europe and Japan
 - fame

My first attempt to ERC starting grant in 2007 was failed!
(success rate ~ 3%, compete with Nobel prize winner, Prof. Novoselov)
But, don't give up!



What are evaluated in your proposal

- Quality of research output/track-record of PI
- Ground-breaking nature of this research
- Potential impact
- Methodology
- High-gain/High-risk balance

Your proposal should be commented by your colleagues and outsiders.

Check your panel member and “guide for peer reviewers”

For interview, rehearsal, rehearsal, rehearsal,...

Why in Europe?

Why in Grenoble? for me...

- different culture and different way of thinking
- large facility (CEA, ILL, ESRF, LNCMI,...)
- long history of low temperature physics
- many researchers from all over the world
- good technical supports
- attractive place (life, food, mountain...)



L. Néel

