

Being a CNRS researcher

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Outline



- Why CNRS?
- Other research organisms
- CNRS structure
- CNRS competition
 - Written application
 - Oral interview
 - Success rates

My academic track





Why CNRS ?



Advancing knowledge : formulate a question and look for an answer

Incredible freedom : you choose your topic and build your research as you want

Possibility to discover new topics

Launching projects, finding collaborators, managing your research budget

Supervising master and PhD students, supervising a team

A bit of teaching (only if you want it, not mandatory)

Participating in a technology transfer, creation of a start-up, ...

Warning : salary is not the best part 😳

Other research organisms

Many different research Institutes (each has its specificities)

- INRIA INRA CEA
- Inserm Pasteur
- IFREMER ...

Link to an extensive list of research organizations : http://www.enseignementsup-recherche.gouv.fr/pid24575cid49677/principaux-etablissements-publics-de-recherche-et-denseignement-superieur.html

National Center for Scientific Research https://emploi.cnrs.fr

Different positions related to research :

- Researcher (CR) research excellence is the main criterion
- Research engineer (IR (good to have a PhD), IE (bad to have a PhD)) – hands-on experience is very important
- Other positions supporting research (experts on patenting, technology transfer, funding agency)



Structure of CNRS



Wide range of topics. 10 institutes:

- Institute of Biological Sciences (INSB)
- Institute of Chemistry (INC)
- Institute of Ecology and Environment (INEE)
- Institute for Humanities and Social Sciences (INSHS)
- Institute for Engineering and Systems Sciences (INSIS)
- National Institute for Mathematical Sciences and their Interactions (INSMI)
- Institute of Physics (INP)
- Institute for Information Sciences and Technologies (INS2I)
- National Institute of Nuclear and Particle Physics (IN2P3)
- National Institute for Earth Sciences and Astronomy (INSU)
- ~ 1200 labs hosting CNRS researchers (France+international) You can learn about a lab :

https://annuaire.cnrs.fr/I3c/owa/annuaire.recherche/index.html

Official info about CNRS labs



Example : LPS Description administrative de l'unité [Dernière modification : 08/01/2019] UNIVERSITE PARIS-SUD bat. 510 91405 ORSAY CEDEX ≽ Unité Région : Ile-de-France Tél: 0169158028 Personnel Fax: 0169156086 Mél : ravy(at)lps . u-psud . fr Activité Web : http://www.lps.u-psud.fr/ Aide • Etablissement(s) de rattachement : Principal : CNRS Principal : UNIV PARIS-SUD • Responsable(s) : Sylvain RAVY, Directeur • Effectif: 216 Chercheurs CNRS: 57 Chercheurs non CNRS: 37 ITA CNRS: 37 ITA non CNRS: 11 Non permanents : 74 • Institut(s) de rattachement : INP (Institut de physique) • Institut(s) secondaire(s) : INSB (Institut des sciences biologiques) • Section(s) : 3 - Matière condensée : structures et propriétés électroniques 5 - Matière condensée : organisation et dynamique 11 - Systèmes et matériaux supra et macromoléculaires : élaboration, propriétés, fonctions 14 - Chimie de coordination, catalyse, interfaces et procédés 20 - Biologie moléculaire et structurale, biochimie • Délégation(s) : 04 - Ile-de-France Gif-sur-Yvette • Date de création : 01/01/1998 Date de renouvellement : 01/01/2015

Sections of CNRS



CNRS covers a wide range of topics

It has 41 Sections, for example :

- 03 Condensed matter : structures and electronic properties (INP)
- 04 Atoms and molecules, optics and lasers, hot plasmas (INP)

06 – Information Science: computer science fundamentals, formal calculus, algorithms, models and applications (INS2I)

07 – Information Science: processing, integrated device-software systems, robots, control, images, contents, interactions, signal and languages (INS2I, INSIS)

8 – Micro- and nanotechnologies, micro- and nanosystems, photonics, electronics, electromagnetism, electrical energy (INSIS)

+ 5 interdisciplinary commissions 50 – 54, for example :

51 – Modeling and analysis of biological data and systems: approaches through computer science, mathematics, and physics

54 – Experimental methods, concepts and instrumentation in materials science and life science engineering

CNRS competition



Competitive admission process starting in December CRCN position (replaces the CR2 / CR1 positions) : unlimited trials Open positions are publicly advertised : http://gestionoffres.dsi.cnrs.fr/fo/offres/default-fr.php You can apply for any lab, however some positions may have topical or geographical constraints

Example from the last competition :

Section n°08 : Micro- et nanotechnologies, micro- et nanosystèmes, photonique, électronique, électronique

 $N^{\circ}08/01$ - 9 Directeur.rice.s de recherche de 2e classe. Concours ouvert sur les thèmes scientifiques relevant de la Section n°08.

<u>N°08/02</u> - 5 Chargé.e.s de recherche de classe normale : dont un.e prioritairement affecté.e à GEORGIATECH, pour exercer une activité sur le site de Metz, ou à CINTRA.

<u>N°08/03</u> - 1 Chargé.e de recherche de classe normale : pour exercer une activité dans une des unités suivantes : Laboratoire Ampère, FEMTO-ST, G2Elab, GeePs, IES, LAAS, LAPLACE, SATIE, sur le thème « Énergie électrique, dont smartgrids ».

<u>N°08/04</u> - 1 Chargé.e de recherche de classe normale : affecté.e dans l'une des unités suivantes : Institut de physique de Nice (INPHYNI) à Nice, Laboratoire Charles Fabry (LCF) à Palaiseau, Laboratoire interdisciplinaire Carnot de Bourgogne (ICB) à Dijon, Laboratoire de physique des lasers (LPL) à Villetaneuse, Laboratoire photonique, numérique et nanosciences (LP2N) à Talence, Physique des lasers, atomes et molécules (PhLAM) à Lille, sur la thématique de la « photonique ».

General information on the competition can be found online: https://www.dgdr.cnrs.fr/drhchercheurs/concoursch/informer/default-en.htm 9/24

CNRS competition



- You can apply to multiple positions and sections
- You do not need to be a French citizen
- Application (written and oral interview) can be in French or English
- No official age limit (in practice, being young may increase your chances)

How to apply?

- Choose your host lab and contact your host team This is very important – no "lab-free" applications Some sections request at least 2 potential host labs
- Choose your section (to which your lab belongs) Check the key words of your section – it is important that your project matches the topics of the section Differences can be subtle (e.g. sections 3 and 8 cover solid state physics, but 8 targets "applications", while 3 is fundamental)
- Register your application on-line : https://concourschercheurs2019.dsi.cnrs.fr/candidature_ligne.php?langue=fr

CNRS application website

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CITS	Concours chercheurs
	Accue
S'inscrire aux concours	
	∫ } Assistance
Candidature en ligne	
La date limite de candidature aux concours de recrutement des chercheurs du CNRS, fixée au 08/01/2	019 à 12:00 - heure de Paris (ou envoi postal : cachet de la poste du 08/01/2019 faisant foi), est dépassée.
 Admission à concourir (1ère phase) Admission (3ème et dernière phase) Admission (3ème et dernière phase) Admission (3ème et dernière phase) Le déroulement de chacune de ces 3 phases des concours est expliqué dans le <u>guide du candidat</u>. Pour tout retrait de candidature, vous pouvez envoyer un courrier à l'adresse suivante : CNRS - Direction des ressources humaines Service central des concours 1, place Aristide Briand 92195 MEUDON Cedex 	
Accès à votre candidature	
Attention : les champs dont le libellé est suivi de [•] sont obligatoires.	
Accéder à votre candidature avec votre mot de passe :	
Adresse électronique [•] :	
Mot de passe [•] :	
Valider	
Réinitialiser votre mot de passe : Un email vous sera envoyé pour la réinitialisation de votre mot de passe.	
Adresse électronique [•] :	

https://concourschercheurs2019.dsi.cnrs.fr/candidature_ligne.php?langue=fr ^{11/24}



After PhD before CNRS : your research independence

- You need to prove your own research independence This can be done by showing topical and geographical mobility Do a postdoc or ATER in a different place from your PhD lab (even better if abroad)
- When choosing your postdoc, start thinking about your future : People often apply to CNRS in their postdoc lab
- You need a good publication record + citations + talks in international conferences Publications from your postdoc without your PhD adviser are important (proof of your topical mobility and independence)
- Collaborations with different labs (in France and abroad), taking part in research grants, supervision of master and PhD students... also increase your chances
- Don't apply in your PhD lab (true in most of the sections)

CNRS application is highly competitive (1/15 to 1/20)

Written application



2 stage selection process : written application and interview

Written application is important since the 1st stage is based solely on the provided documents

Written application consists of :

- On-line form ⇒ it generates a file with short summaries used by all committee members
- CV
- Description of your past research work (including a description of your PhD work)
- Publication list and 5 most important publications
- Your PhD diploma or equivalent
- Research project
- In "Divers" you can put your recommendation letters (it is good to have 1 letter from the hosting laboratory or team stating that they really want you)

Your application will be analyzed in detail by ~2 reporters

Your CV



CV is read quickly by all jury members, it should be well structured Don't make it too long (typically 2 pages)

- Your name, age, contact info, possibly a photo
- Education
- Research experience
- Teaching experience, if any
- Research topics and competencies
- Publication track record (number of papers, proceedings, conference presentations, patents, etc.)
- People who can recommend you

You need to include your PhD diploma (or "attestation de réussite") in the application.

If it is a foreign diploma, your application will go through "instance d'équivalence" – the recruitment commission states on the equivalence of your education to a PhD diploma (it is almost an automatic validation)

Your previous research work



You should describe your research topics and **achievements** It is possible that your reporter is not exactly in your domain. You should **emphasize your results and explain their importance**.

There is no page limit, but stay synthetic

Description of your past research work 5 – 10 pages
 Structure your text with subtitles, put your main results in bold
 (after reading, you reporter should be able to easily find information)
 Don't hesitate to illustrate your results with figures

- **Description of your PhD work 0.5 2 pages** (you may also include the report of the jury on your defense, but it is rarely useful)
- Publication list and 5 publications

Your publications as a first author or where you've done a major contribution and/or with a high impact. You can put publications from your PhD, but include also **publications from your postdoc/ATER** to show your independent research activity

Online application form



To create your application, you should fill in different information and short summaries. These summaries are important since all jury members read them during different discussions.

- Your personal data and present status
- Your PhD or equivalent diploma (title of doctoral thesis, supervisor's name, date of defense, laboratory/university)
- Summary of completed research (about 10 lines)
- **Proposed research program** (title, summary about 10 lines, keywords)
- References of 3 publications
- Names of the laboratory(ies) where the activity could be performed very important !

You should be in contact with the host team and give the lab name, it should not be your PhD lab – in many sections this is an eliminatory criterion) 16/24

Online application form – example



Thèse (intitulé, nom du directeur de thèse, date de soutenance et laboratoire d'accueil) / *Thesis or equivalent diploma* (*title of doctoral thesis, supervisor's name, date of defense, and laboratory*)

Intense ultrashort terahertz pulses: development and applications S. Tzortzakis 12/12/2011

Institut of Electronic Structure and Laser

Résumé des travaux antérieurs / Summary of completed research

Le fil conducteur de mes travaux de recherche est la gamme spectrale du lointain infrarouge. Ces travaux peuvent être regroup és selon deux grands axes. L'un correspond à l'etude et l'optimisation de sources, l'une en milieu diu é et l'autre dans la mati ère condens ée. Le second axe consiste à la mise en place et la caract érisation d'outils novateurs dans cette gamme spectrale. Concours chercheurs 2015 du CNRS

Formulaire n° : 78915 Concours n° : 08/03

Grade : CR2

Activité professionnelle pendant et après la thèse / Professional activities during and after thesis work

Date début / From	Date fin / To	Fonctions et statut / Responsibilities and status	Etablissement / Institution	Lieu / Place
01/10/2014	01/10/2016	Postdoctorant	CNRS	Orsay
01/10/2012	30/09/2014	Postdoctorant	Université Paris Sud	Orsay
15/09/2011	14/09/2012	Postdoctorant	CNRS	Paris
01/01/2007	01/05/2011	Doctorant	IESL-FORTH	Heraklion Grèce

Post-doctorat à l'étranger / Post-doctoral position abroad

Situation professionnelle actuelle / Current professional status : en France : CNRS / Contractuel

Nombre de publications dans des revues avec comité de lecture / Number of publications in peer-reviewed	
journals	13
Nombre de publications dans des actes de congrès avec comité de lecture / Number of publications in	
peer-reviewed conference proceedings	13
Nombre de livres ou de chapitres de livre / Number of books or book chapters	0
Nombre de conférences invitées dans des congrès internationaux / Number of invited lectures in international	
scientific conferences	0
Nombre de brevets / Number of patents	0

Candidatures multiples / Other applications

Grade / Class				
Concours n° / Competition n°				

Research project



The project is the most important part of your application.

It should be in line with the topic of the section to which you apply.

- It should be *your* project (or at least look like that)
- It should bring something **new** to the field
- It should address a scientific / technological / societal challenge
- It should be **ambitious** and present long term perspectives (you are recruited for a 40 year long carrier)

It should be built on **your past research experience** in connection with the **host team expertize**

- You should be the key element in successful realization of this project (host lab cannot do it without you)
- The host lab expertise and environment are also important (you cannot do it without the host lab).
 Administrative aspect : the host lab should be affiliated to the section in which you apply. If applying to multiple sections, you should make different research projects.

How to write your research project



• Why this project?

Context and motivations. What is the big research question that you want to address? Define the goals and expected breakthroughs.

• Which solution and why?

Your approach to solve the problem and its advantages. Positioning wrt competing solutions / technologies. State of the art. Competitors.

• Why now?

Why it has become possible to address the challenge? Enabling preliminary results proving the feasibility.

• How?

Explain your methodological approach. Define short-term and long-term goals. Cite collaborations.

• Why me and why in this lab?

Your past experiences and skills and the lab environment are ideal to make it work. Show that you have interacted with the host lab. Give a broader look on the environment (other neighbouring labs, Labexs, transverse programs) for potential collaborators. National positioning.

Success rate for the 1st stage: 30-40%

Example Section 08, 2019 competition, 5 CRCN positions in 08/02: 81 admission à concourir (satisfy the formal requirements for the application) 28 admis à poursuivre (selected based on their application)



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2^d stage : interview



- Most important part of the competition. You need to convince all members of your sub-committee (not all experts in your topic).
- Short: 10/15 minutes presentation + 10/15 questions
- Main focus should be on your research project Don't loose too much time on your past activities (in many sections, before you enter, your reporter has already presented your CV) Show your principal past contributions, their originality and relevance for your project Past experience ≤ 50 %, research project ≥ 50%
- You can make a summary of your expertise before presenting the project
- Research project: scientific context, main goal, methods you plan to use, how it fits in the lab and surrounding environment, ...

The take-home message of your presentation should be :

I propose an innovative timely project. I have a strong research record and a unique expertise to succeed. I bring a real added value to the host lab (the lab cannot do it without me). The host lab and its environment is the ideal place for my project.

Interview : questions



Discussion with the committee is even more important than your presentation Give **short** responses

Example of questions for Section 08

- Scientific questions from your reporters
- More general questions :
 - What are alternative solutions to the problem/competing technologies? Why your method is better? (you should be aware of any alternative)
 - Proofs/indications of feasibility ?
 - Why it has not been done before? Existing blocking points and how you will deal with them
 - Who is working on this topic in France/in the world? Who is the leader?
 - Your positioning in the host lab (whom will you work with?)
 - Your planned/on-going collaborations?
 - Do you apply to different sections, why?

Practice your presentation with as many people as possible (not necessary in your discipline), pay attention to non-specialist questions

Success rate after the 2^d stage: 5-9%

Example Section 08, 2019 competition, 5 CRCN positions in 08/02 : 81 admission à concourir (satisfy the formal requirements for the application) 9 admissibilité. INSIS will select 5 from the list.

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Être chercheur-e au CNRS	Accueil concours chercheurs > Consulter les résultats
S'informer sur les concours	Consultation des résultats Sélection du concours
Concours 2019	Soit vous connaissez le numéro du concours
Consulter les offres	Concours : 00/ (ex :01/02) Phase : admissibilité
Suivre sa candidature	Soit vous ne connaissez pas le numéro du concours
Consulter les calendriers	Étape 1 Étape 2
Connaître les jurys	1) Section : 08 😒 🙎 2) Concours : 08/02 📀 🙎
Consulter les résultats	Grade : CRCN 💿 🕐 🗁 Phase : admissibilité 💿 🥐
Nous contacter	Valider Afficher les résultats
्राह होडे English version	Liste des candidats admissibles au concours N° 08/02 Cette liste est consultable, sur demande, au siège du CNRS. Il est rappelé que seule la liste disponible au siège fait foi.
Recrutement chercheurs handicapés	PECQUEUR Sébastien Admissible classé n° 1
Comité national de la recherche scientifique Emploi CNRS Sulvez nos offres :	WIECHA Peter Admissible classé n° 1 DEFOORT Martial Admissible classé n° 3 DELAMARRE Amaury Admissible classé n° 3 MARKOVIC Danijela Admissible classé n° 3 MUKHERJEE Chhandak Admissible classé n° 3 PAVANELLO Fabio Admissible classé n° 3 DUPE Bertrand Admissible classé n° 3 SIDORENKOV Leonid Admissible classé n° 8 Attention I La constitution et l'utilisation de cette base de données sont soumises aux dispositions légales françaises en vigueur concernant les traitements nominatifs (Loi 78-17) et ont obtenu l'avis favorable numéro 375 201 de la commission nationale de l'informatique et des libertés. La capture des informations nominatives à fin de création d'un autre traitement nominatif (par exemple à usage commercial ou publicitaire) est strictement interdite pour tous pays.
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Final message



- Discuss with your colleagues about different academic carrier options
- Think about your CNRS application when choosing your postdoc
- Contact people in different labs (e.g. your collaborators, approach people in conferences, ...)
- Once you have fixed the lab and topic, visit them, discuss with them, get their feedback on your ideas
- Start to prepare your application early
- Don't forget to position your project (state-of-the-art, competitors, explain your choice of the host lab)
- Ask a colleague to read your project
- Train your oral presentation with researchers from different domains to get prepared for questions

Whole application requires time and energy \rightarrow stay confident