

Dr. OSATO Ken

### My research

The large-scale structure of the Universe, which is also referred to as the cosmic web, is formed through the interplay between gravity and accelerating expansion. The evolution of this large-scale structure reflects the nature of dark matter and the theory of gravity. In order to shed light on the physical origin of dark matter and dark energy, numerous international survey projects are ongoing or will be launched soon. In this research project, toward upcoming surveys, I aim to develop a theoretical framework to compute the cosmological statistics in a fast and accurate manner.

### Advice on preparing to go abroad

In order to reside in France to do research, I believe that you will have to apply for a researcher visa. You will need to obtain a hosting agreement (*convention d'accueil*) to apply. There are cases when it takes several months to issue this documents. Upon arrival in France, you will also need to obtain a resident permit (*titre de séjour*). If your luck is bad, it could take three months or longer to obtain this permit. So, I recommend that you get started with your application processing as soon as you arrive in France. There is a silver lining: in many cases, including my own, people in the administrative office of the receiving institution will do part of this processing for you. Other than costing you some time, this will save you a lot of trouble. There is a case when the issuing of these documents can be significantly delayed: As it is not possible to get a reentry when departing France (Schengen Area), your visa will have to be reissued.

### Advice on problems that may arise when living abroad

The biggest problem of residing in France as a researcher is the language. At my receiving institution, most of the postdoctoral researchers are from countries other than France, so I have no problem carrying out my research activities speaking mostly English. There are, however, cases where the host institution has made French its official language (in practice). In any case, you'll find that everyday living in France makes some degree of language learning inevitable. Considering the situation over recent years, it cannot be said that public safety in Paris is good. Starting from the simultaneous terrorist attacks in 2015, sporadic terror incidents have been occurring in the city. I believe that common crimes (such as pickpocketing and mugging) are committed more frequently in Paris than in other big cities of Europe. You should have a basic strategy for your own self-protection, such as not walking at night alone in

unsafe areas.

What is it like living abroad?

There is a chronic shortage of housing in Paris. It is very difficult find and secure a place to live from Japan. In the south of Paris, there is a dormitory, called *Maison du Japon, Cité Internationale Universitaire de Paris*, at which researchers can apply to stay for a period of up to two years. It's my sense that the cost of living in Paris is about 1.5 times higher than in Tokyo. There are many Japanese restaurants and grocery stores in Paris. As this is also the case in most big cities in Europe and the US, eating is not a problem for Japanese.

What is good about your receiving a Postdoctoral Fellowship for Research Abroad?

The greatest advantage is having all the time I need to pursue my own research projects. Not being encumbered by financial anxiety, I can concentrate on my research. Being in an environment different than Japan's increases my chances to come in contact with a wide variety of research themes, which provides opportunities for me to start new joint research projects. By engaging in satellite observation programs led by research institutions in Europe, I have been able to broaden my own research network.