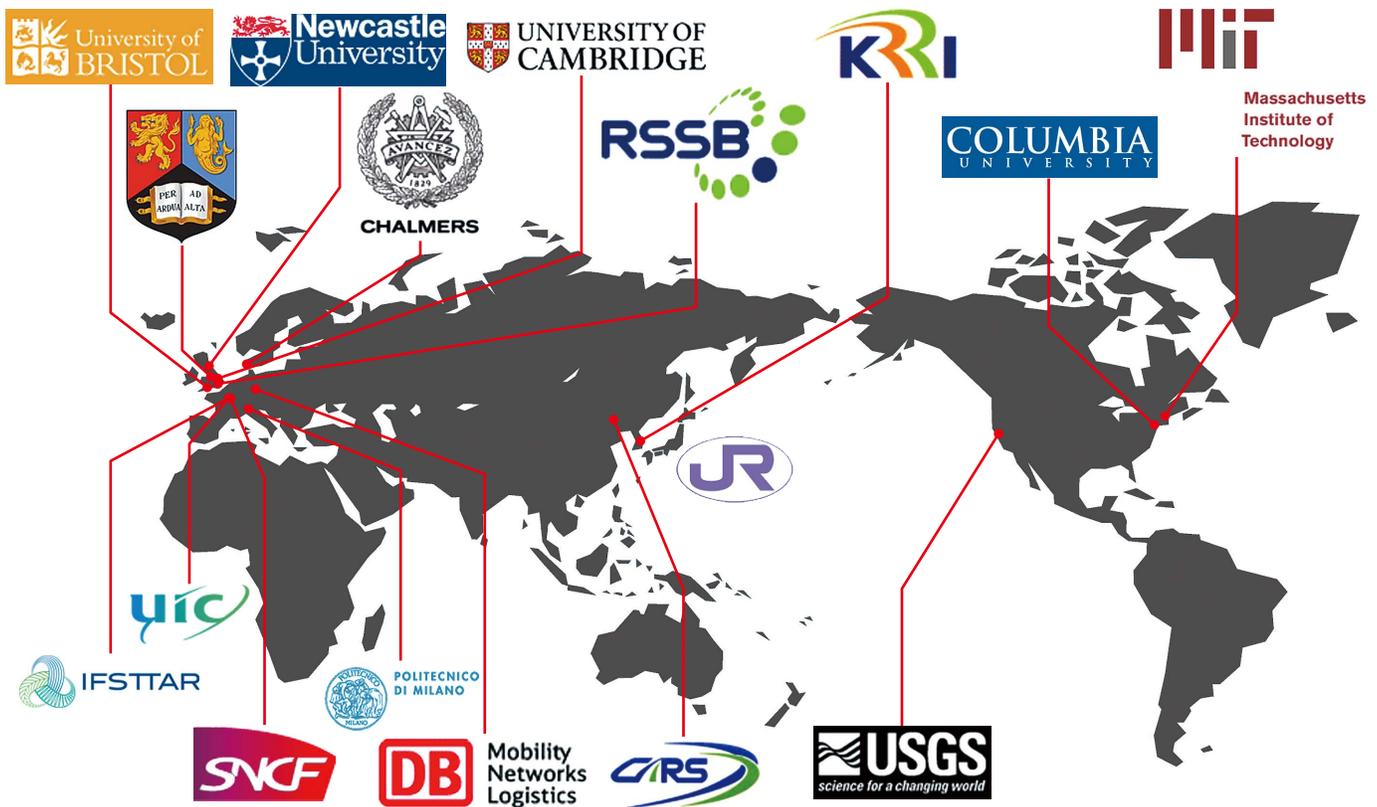


# Overview of RTRI's International Activities

RTRI is actively advancing international research collaboration with overseas universities and rail-related businesses. For the past three years, we have established collaborative relationships with 16 foreign organizations and sent 20 researchers overseas mainly for promoting research collaboration with those organizations. We report recent updates on RTRI's international activities below.

## Overseas organizations with collaborative relationships



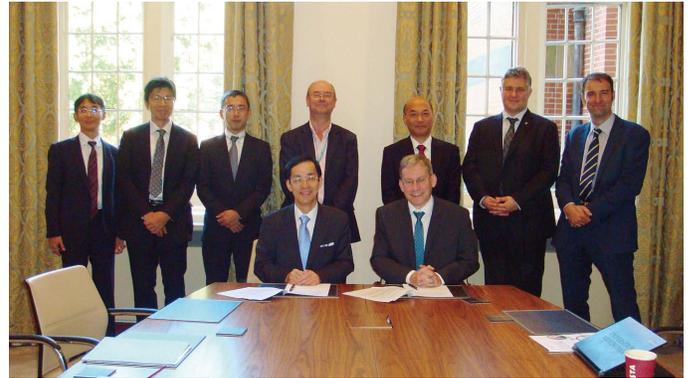
## Cooperation agreement between BCRRE and RTRI

RTRI has signed a cooperation agreement for collaborative research with the Birmingham Centre for Railway Research and Education (BCRRE) at the University of Birmingham, UK in order to strengthen their relationship. Both parties will contribute to development of science and technology, in particular, railway technology through sharing their research capabilities and resources in advanced and practical research and development and in personnel exchange and development of the next-generation human resources under the agreement.

BCRRE has been dedicated to research and education on railway technologies. It covers research fields of vehicle aerodynamics, condition monitoring, train operation systems, weather disaster mitigation, geotechnical engineering, energy management, big data analysis, environment, and safety. Both organizations have already started exchanges of researchers.

Both parties will start the following two collaborative research projects under the agreement:

- Development of smart materials and reliability-based service-life



**Prof. Andy Schofield, Pro-Vice-Chancellor of the university and Dr. Norimichi Kumagai, President of RTRI at the signing ceremony.**

- assessment for railway concrete sleepers.

- Study on vehicle aerodynamics characteristics under crosswind.

## Collaborative Research with SNCF

RTRI and French National Railways (SNCF) has implemented a number of joint research projects in various technical fields since two parties started research collaboration in 1995. Both parties have had collaborative research seminars every couple of years and the 7th one took place at RTRI, Tokyo, for three days from 11 to October 13, 2016.

In this seminar, the results of the 7th phase joint research projects were reported. In the research project "Inspection and predictive maintenance strategies for OCS," a new OCS state estimation method and an OCS configuration optimization method have been proposed. In the research project "Simulation models of ballasted track," SNCF and RTRI carried out DEM simulations of ballasted track behaviors.

In the R&D management meeting, RTRI and SNCF discussed on the application of Information and communication technologies to railways for further improving safety as well as for raising railway competitiveness by reducing overall operational cost. RTRI and SNCF also agreed to start 3 collaborative research projects including "Inspection and predictive maintenance strategies for OCS" and 6 information exchange projects including "high-precision train position detection technologies."



**Ms. Carole Desnost, Chief Innovation Officer, Innovation & Research, SNCF and Dr. Norimichi Kumagai, President of RTRI at the management meeting.**