Helping the development of new time transfer methods and their optimal use to improve the world-wide time scale UTC.

The International Bureau of Weights and Measures (BIPM) is an international organization established by the Metre Convention, through which Member States act together on matters related to measurement science and measurement standards.

The BIPM has a number of vacancies for short-term secondments in the Time Department. The secondments consists of:

- Working with BIPM staff to develop new methods and techniques for improving the quality of the international time reference UTC and its rapid realization UTCr, to support the national time laboratories, and the needs of time and frequency metrology at the international level.

These are opportunities for career development, working with scientists from the BIPM and colleagues from national metrology institutes, helping to deliver the BIPM Work Programme, and contributing to the international measurement system that underpins the need of synchronization and precise time and frequency comparison for scientific and industrial applications.

The objectives of the BIPM

To represent the worldwide measurement community aiming to maximise its uptake and impact

To be a centre for scientific and technical collaboration between Member States providing capabilities for international measurement comparisons on a shared-cost basis

To be the coordinator of the worldwide measurement system ensuring it gives comparable and internationally accepted measurement results

Terms and conditions

Applications are welcome from employees of a national measurement institute, a designated institute or a relevant international organization. You would not be employed by the BIPM and would remain an employee of your institute. The BIPM will normally pay an allowance to cover your additional living expenses. Help will be given in finding local accommodation for the duration of the secondment.

Experience needed

The experience needed depends on the project. A good level of English or French (spoken and written) is essential.

About the Time Department

The Time Department computes and disseminates the international reference time scale Coordinated Universal Time (UTC), and provides traceability to the International System of Units (SI) to local realizations of UTC maintained in national institutes. For this work, the Time Department collaborates with about 80 Time laboratories world-wide, develops algorithms and specific software and has a laboratory appropriately equipped for the calibration of time transfer equipment in the participating institutes. It has a staff of seven scientists and specialist technicians.

Working on secondment at the BIPM

The BIPM offers a unique environment for a secondment. It is located in Sèvres, on the outskirts of Paris (France) and has an international staff of about 75. There is a wide range of accommodation available nearby, including furnished apartments. There is an excellent public transport network to central Paris and the international airports are in easy reach.

59 Member States and 42 Associates
Secondments – 2018/2019

How to apply
Please contact the Department Director, Dr Patrizia Tavella (patrizia.tavella@bipm.org) to discuss the project and confirm whether the secondment opportunity is still available. If you decide you would like to go ahead, please forward a copy of your CV so that the BIPM can confirm that the project would be suitable. The BIPM will then send a copy of a Secondment Contract which should be signed by the authorized person at your organization.

If the secondment opportunity is no longer available or the project is not suitable, the BIPM would be pleased to discuss opportunities for a secondment in the future.

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<td>T-S1</td>
<td>To evaluate the stability and accuracy of new GNSS time transfer measures and the impact in UTC</td>
<td>Study of the Beidou and Galileo systems and their use for time transfer. Development, testing, and comparison of the necessary algorithm and SW for the data process and inclusion in UTC</td>
<td>6-12 months</td>
<td>Experience in GNSS measures and data treatment</td>
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<td>T-S2</td>
<td>To ensure the optimal use of optical standard measurements in TAI/UTC</td>
<td>Development of the correct statistical treatment of measures of optical frequency standards remotely located.</td>
<td>12-24 months</td>
<td>Experience in algorithm development and in time transfer analysis Knowledge of time and frequency transfer on optical fibre</td>
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<td>T-S3</td>
<td>Improvement of the algorithm for the calculation of the UTC time scale</td>
<td>Testing application of the Kalman Filter to UTC generation to reduce the impact of time link noise.</td>
<td>6-12 months</td>
<td>Experience in algorithm development and knowledge of the Kalman filter technique</td>
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<td>T-S4</td>
<td>Improvement of the time link performance in UTC calculation</td>
<td>Investigating the introduction of redundant time links in the computation of UTC.</td>
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<td>T-S5</td>
<td>Parameter optimization in the UTC algorithm</td>
<td>Optimization of the UTC configuration parameters based on the individual clock behaviour to improve the robustness of the algorithm and helping in outlier detection.</td>
<td>3-6 months</td>
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*The duration of the projects is flexible, to meet your requirements*