Report on the outcomes of a Short-Term Scientific Mission[[1]](#footnote-1)

Action number: E-COST-GRANT-CA18212-d2b1d891

Grantee name: Uldis Bērziņš

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| **Details of the STSM**  Title: Laser probing of metastable Ba+ for lifetime measurements  Start and end date: 21/08/2022 to 04/09/2022 |
| **Description of the work carried out during the STSM**  Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section. |
| Me, Uldis Bērziņš and two students from University of Latvia: Armans Bžiškjans and Arturs Ciniņš, worked for two weeks DESIREE ion beam facility at Stockholm University. We worked in laboratory together with local team members and close contact with our contact person professor Henning Schmidt and with our collaboration partner prof Henrik Hartman from Malmo University. As well consultations with our collaboration partner prof Dag Hanstorp, from University of Gothenburg were taking place remotely During first week we were preparing the lasers for experiment and local team was working on Ba ion beam preparation. During second week two laser beams and ion beam were sent into experimental chamber of DESIREE and optimisation of system and final measurement of Ba + metastable state 5d 2D3/2 were performed.  Both participants PhD student Armans Bžiskjans and PhD candidate Arturs Ciniņš worked under my guidance. In working plan Ciniņš was not included asparticipant, but since our STSM was delayed and shifted from May to end of August due to problems with laser at DESIREE, the decision was made to bring one more person to DESIREE from Riga with experience on lasers. By good fortune, a symposium and a COST working group meeting were held at DESIREE in Stockholm during time of our visit, and I participated in both events. |
| **WDescription of the STSM main achievements and planned follow-up activities**  Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.  We have succeeded to prepare experiment and to perform the measurements. The experimental data has to be analysed and after that conclusions will be made. With a positive result, we will have shown that DESIREE can be used to measure the lifetimes of metastable levels of positive ions with high precision Then during the time untill yearshift the publication will be prepared and the application for beam time on DESIREE for the measurements of metastable level lifetimes with astrophysical importance will be submitted.  This visit gave significant impact on both younger team members from Riga. The results of it will be included in theyr thesis work.  After this visit we see future for projects on DESIREE for scientists from University of Latvia. |



1. This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant. [↑](#footnote-ref-1)