Uncovering the unseen – Archaeological prospection project started at Birka to explore the Viking Age site by a virtual dig

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**A new European archaeological research initiative - the LBI ArchPro - is starting to map the entire Viking Age site Birka-Hovgården - without turning a single piece of soil. Cutting-edge technology mounted on tractors and ATV´s provides a detailed non-invasive three-dimensional look into the rich archaeological stratification at Birka - one of the first towns in Scandinavia. This large-scale study will produce a seamless virtual map of the buried remains from the Viking Age. Dwellings, storeys and, workshops, roads, fortifications and harbour constructions as well as graves and infra-structure show up clearly in ground penetrating radar data or measurements of minute variations in the Earth magnetic field. The huge data sets provide the possibility for a virtual excavation of complete settlements and landscapes within 3D computer visualisations.**

Following up the last summer´s sensational find of a wooden counterpart at Stonehenge the international team of scientists from the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology (LBI ArchPro) is starting a novel archaeological research project in Sweden. The ultimate goal of the 3 years project directed by Riksantikvarieämbetet (RAÄ) is to map the entire UNESCO World Cultural Heritage Site Birka-Hovgården with latest non-invasive archaeological prospection technology from the air and on the ground.  The first fieldwork phase on the ground will be conducted over the course of three weeks in May and June 2011 starting on May 23rd. The research strategy, involving high resolution radar arrays pushed by tractors and magnetometer arrays pulled by Quad ATVs, which are tracked by GPS with centimetre precision, permits the non-invasive large-scale mapping and investigation of this world heritage site in 3D.

*´The project will result in considerable new information about the layout, construction and development of one of the World's best preserved Viking Age central places. Instead of time and cost expensive traditional archaeological excavations the novel LBI approach applies latest ground penetrating radar technology and highly sensitive magnetometers measuring tiny variations in the Earth magnetic field at high speed at the scale of landscapes.´* explains Prof. Wolfgang Neubauer, director of the LBI ArchPro.

*´Initial test measurements at Birka conducted by RAÄ have shown that the new technology is able to show for the first time without excavations the remains of Viking houses as well as of an older town rampart in unprecedented detail. Even the remains of single wooden posts of the Viking Age buildings show up in the digital images produced from the huge amount of measurement data -all this without turning a single piece of soil. ´* says Dr. Immo Trinks from RAÄ, currently researcher at the LBI ArchPro.

The LBI ArchPro (archpro.lbg.ac.at) is a research institute of the Ludwig Boltzmann Gesellschaft ([www.lbg.ac.at](http://www.lbg.ac.at)) and was founded in 2010. The institute carries out its research activities together with several international partner organisations and aims to create a network of archaeological scientists supporting interdisciplinary research programmes for the development of large scale, efficient, non-invasive technologies for the discovery, documentation, visualisation and interpretation of Europe's archaeological heritage. The lead partners of the institute based in Vienna, are the University of Vienna (A), the Vienna University of Technology (A), the Austrian Central Institute for Meteorology and Geodynamics (A), the Province of Lower Austria (A), RGZM-Roman-Germanic Central Museum Mainz (D), RAÄ-Swedish National Heritage Board (S); IBM VISTA-University of Birmingham (GB) and NIKU-Norwegian Institute for Cultural Heritage Research (N). The international archaeological project, which is supported by the national partners MALÅ Geoscience AB and Strömma Turism & Sjöfart AB, will apply non-invasive archaeological high-tech at international top level in order to resolve some of the Viking Age mysteries.

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