Cooperation in education and training In Nuclear CHemistry (CINCH-II)

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The CINCH-II project

CINCH-II is the continuation of the CINCH project, which laid grounds for coordination of nuclear chemistry education across Europe. The skills in nuclear chemistry are of strategic, as well as immediate importance for the maintenance of European nuclear operations. The demand for these skills would are necessary in non-energy sectors, and as well for the operation and decommissioning of nuclear installations.

CINCH-II objectives

• To develop and implement modern e-learning tools for distance learning aiming at enhancement of the teaching in nuclear chemistry.

• To lay the foundations of a Nuclear Chemistry Education and Training Platform.

• To develop methods of raising awareness of the possible options for nuclear chemistry in potential students, academia and industry.

EDUCATION   DISTANCE LEARNING

VOCATIONAL EDUCATION AND TRAINING (VET)

Remote controlled experiments

The Institute for Radioecology and Radiation Protection (IRS) at the Leibniz University Hannover develops E-learning components and by providing a remote access to controlled exercises. This will enable institutions to offer nuclear chemistry courses and laboratory access even for small numbers of learners. All three experiments can be accessed online.

➢ GammaLab

  http://cinch.zsr.uni-hannover.de/gammalab.html

➢ AutodepositionLab

  http://paula.zsr.uni-hannover.de/AutodepositionLab.html
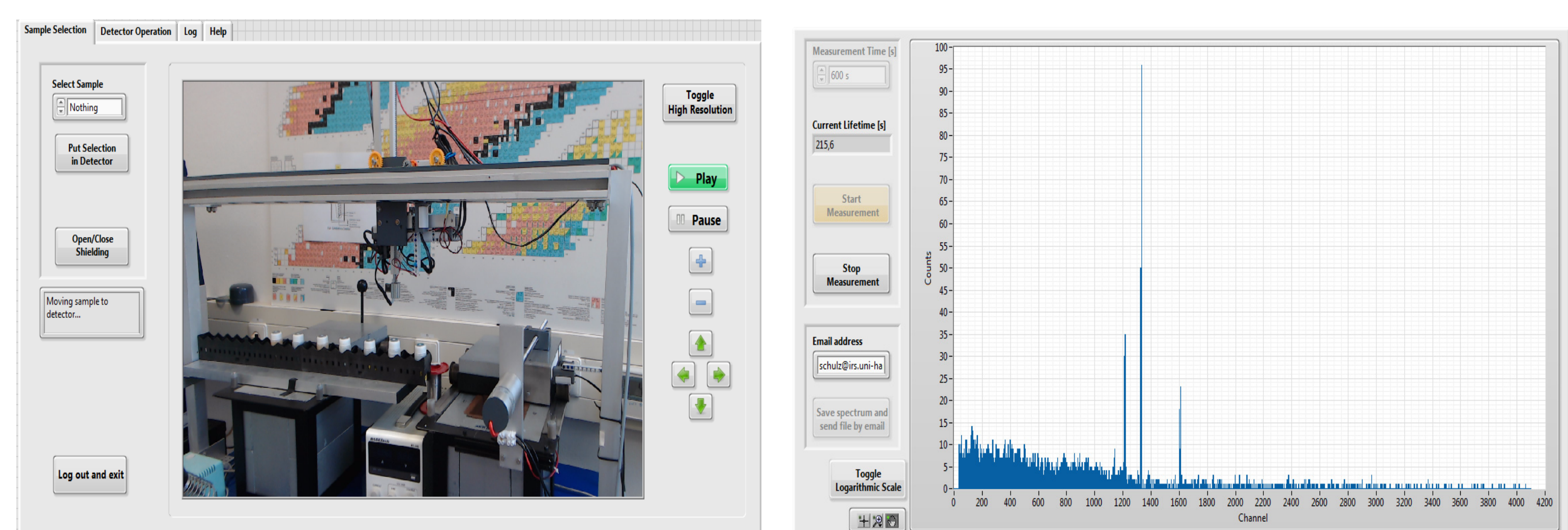
➢ IonLab

  http://ionlab.zsr.uni-hannover.de/ionlab.html
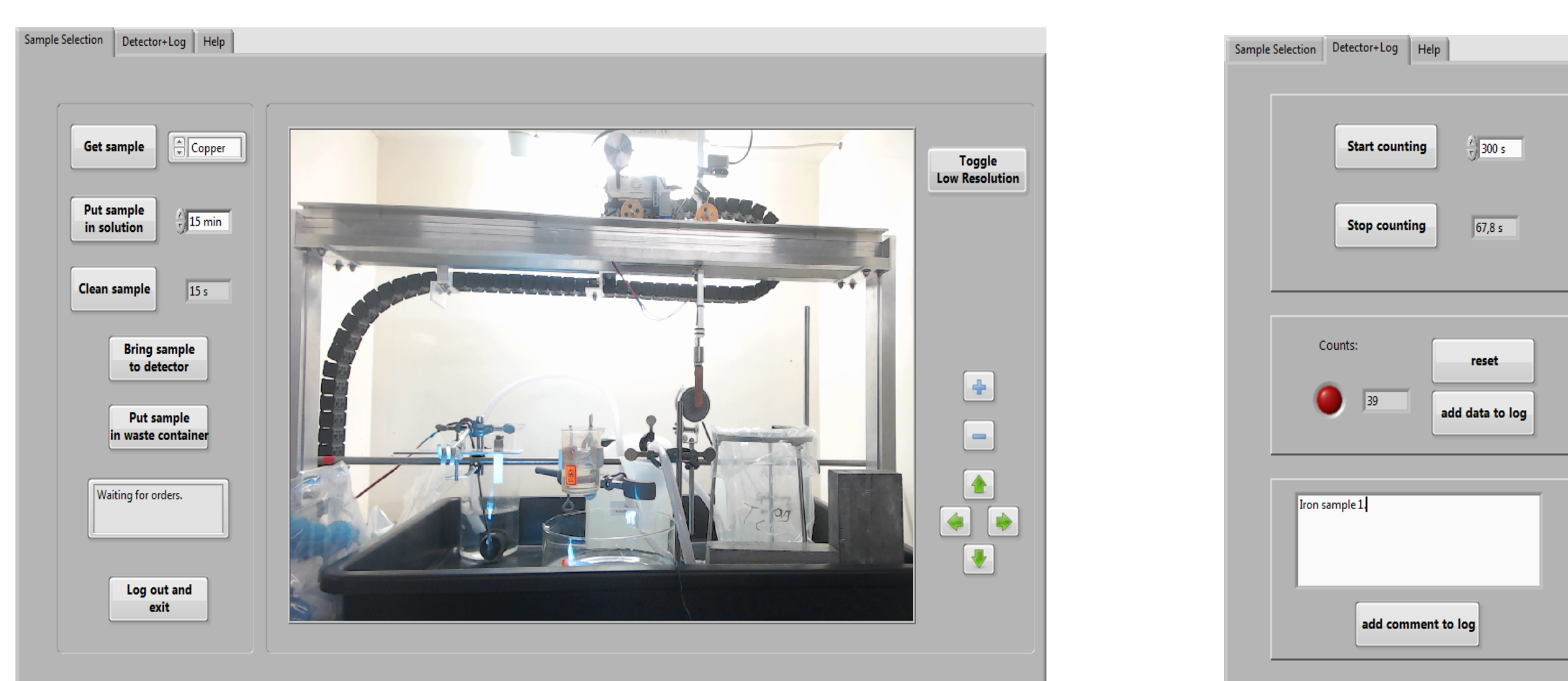
GammaLab

In GammaLab a user can choose a sample and measure it with an HP-Ge-detector. Samples range from ordinary drinking water to soil samples from nuclear hazard sites.

— Practical experience in gamma-spectrometry
— Identification of the different radionuclides
— Determination of their activity
— Meaning and importance of characteristic limits in the evaluation of environmental samples.
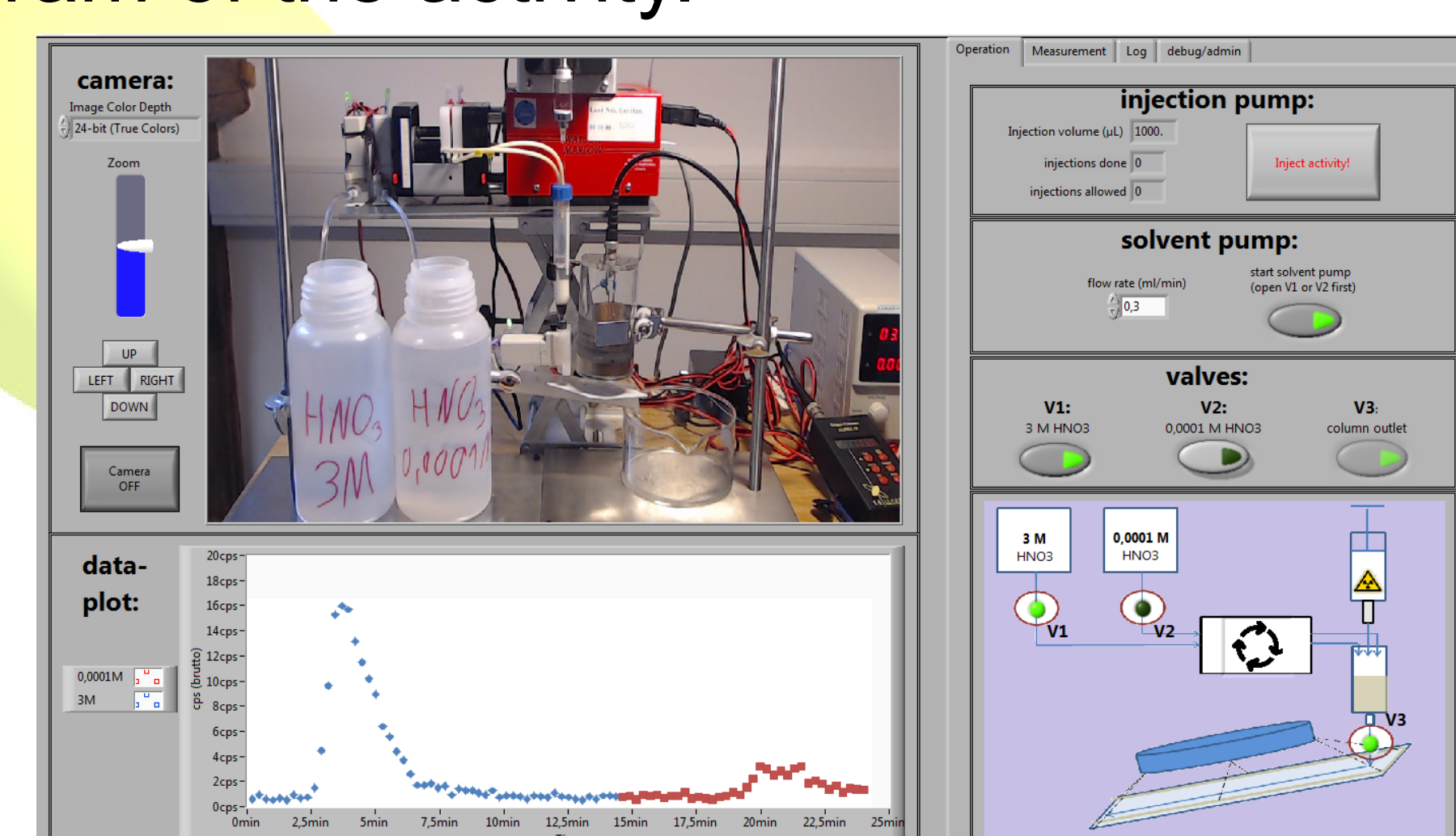
AutodepositionLab

AutodepositionLab gives the user can choose from a selection of metals and immerge them into a solution containing a radioactive electrolyte followed by Geiger-detection of the activity deposited on it's surface.

— Practical experience in Geiger-detection
— Introduction of the approach of producing thin-layered solid samples
— Teaching the basics of electrochemistry by using metals of different nobility.

IonLab

IonLab is a basic ion-chromatography setup. It allows the user to apply a mixture of radionuclides onto a column and then use a selection of solvents for the elution. The separation is followed by a Geiger-detection that yields a simple chromatogram of the activity.

— Learning the fundamentals in theoretical, as well as practical chromatography
— Demonstration of the potential of chromatographical methods for the separation of radionuclides