

# student worker (SHK)

3 months, 10 h/week ( extension possible)

## overview

Solvent extraction is the state-of-the-art technology, for rare earth separation, as part of the beneficiation process. We are working on a novel approach, advancing the operation efficiency of current solvent extraction technology, realized in a so called mixer-settler protocol. One aspect of this, is the implementation of a magnetic separation step, in a continuous rare-earth extraction system.

As a basis for this research, we designed a smart emulsification equipment, for generating an ideal liquid-liquid two phase flow regime, beneficial to down-stream extraction. An alpha prototype has been constructed in our group and we are actively looking for a student to perform the visualization and statistics of the flow regime in a transparent section within the prototype. Additionally we are aiming for an elevated automation degree, for sensor programming.

## task description

1. test the flow inside the existing set-up, over a range of different flow-rates, -velocities and volume fractions
2. visualize the flow regime using camera footage and image recognition
3. with the support of experienced scientist, programming on sensors in labview or python for automatic data sampling

## requirements

- strong interest in experimentation
- strong learning ability and motivation

## contact

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