PlasmaLab Austria

Austrian Plasma Research Infrastructure to enable the decarbonization of the energy intensive industry & energy sectors

Programm / Ausschreibung	FTI Initiative für die Transformation der Industrie 2024 inkl. CETP	**Status**	laufend
Projektstart	01.05.2025	**Projektende**	30.12.2025
Zeitraum	2025 - 2025	**Projektlaufzeit**	8 Monate
Keywords	Plasma Technology; Decarbonization; Energy intensive Industry; Energy Sector		

Projektbeschreibung

In der Sondierungsstudie für das PlasmaLab Austria wird ein Konzept für eine innovative R&D-Infrastruktur für Plasmatechnologien zur Dekarbonisierung von energieintensiven Industrien und des Energiesektors entwickelt. Basierend auf einer Evaluierung der vielversprechendsten Anwendungen wird ein detailliertes technologisches, wissenschaftliches und wirtschaftliches Konzept für die notwendigen Laborkomponenten und deren Infrastruktur für ein neues Forschungslabor am AIT-Gelände in Seibersdorf entwickelt.

Abstract

In the exploratory study for the PlasmaLab Austria, a concept for an innovative R&D infrastructure for plasma technologies applied to decarbonize the energy intensive industries and energy sector is developed. Based on an assessment of most promising applications a detailed technological, scientific and business concept for the required lab components and infrastructure is worked out for a new dedicated site at the AIT site in Seibersdorf.

Endberichtkurzfassung

In order to support deep decarbonization of the energy-intensive industrial landscape , novel technologies and processes are required. Plasma technologies can play a major role in this respect in various industries as they are promising in terms of enabling the electrification and thus the decarbonization of applications where the use of state-of-the art decarbonization measures and technologies is of limited nature.

In the exploratory study "PlasmaLab Austria", a concept for an innovative R&D infrastructure for plasma technologies is developed together with Ebner-TPS and several AIT departments from various fields (TES, PGS, VAC, LKR). An assessment of promising plasma applications deducted several promising technologies and applications for the R&D infrastructure. These include high-temperature plasma torches for industrial furnaces, processing of CO2 as a feedstock and more. Based on these applications, a technical and economical concept for the required lab components and infrastructure is worked out for a new dedicated site at the AIT site in Seibersdorf. This includes a lab-layout, a P&I flowchart, electrical- and gaseous infrastructure concepts. Further, concepts for the handling procedure, optimized control strategies, measurement aspects, regulatory

affairs and more details are discussed during the project with various stakeholders within AIT and the dedicated site in Seibersdorf.

To estimate the investment costs of PlasmaLab Austria, experiences from AIT-internal projects (notably H2-Lab, the LKR construction) were combined with input from the industry partner Ebner TPS and targeted quotations obtained from technology provides. The created a utilization-plan includes expected projects and (-volumes) and underlines the relevance of such an infrastructure as several promising project ideas emerged in discussion with potential partners from the scientific and industrial environment.

Based on these findings and project results, AIT-internal discussions are prepared to make a sound decision of how to proceed with the R&D infrastructure.

Projektkoordinator

- AIT Austrian Institute of Technology GmbH

Projektpartner

- Thermal Processing Solutions GmbH
- LKR Leichtmetallkompetenzzentrum Ranshofen GmbH