

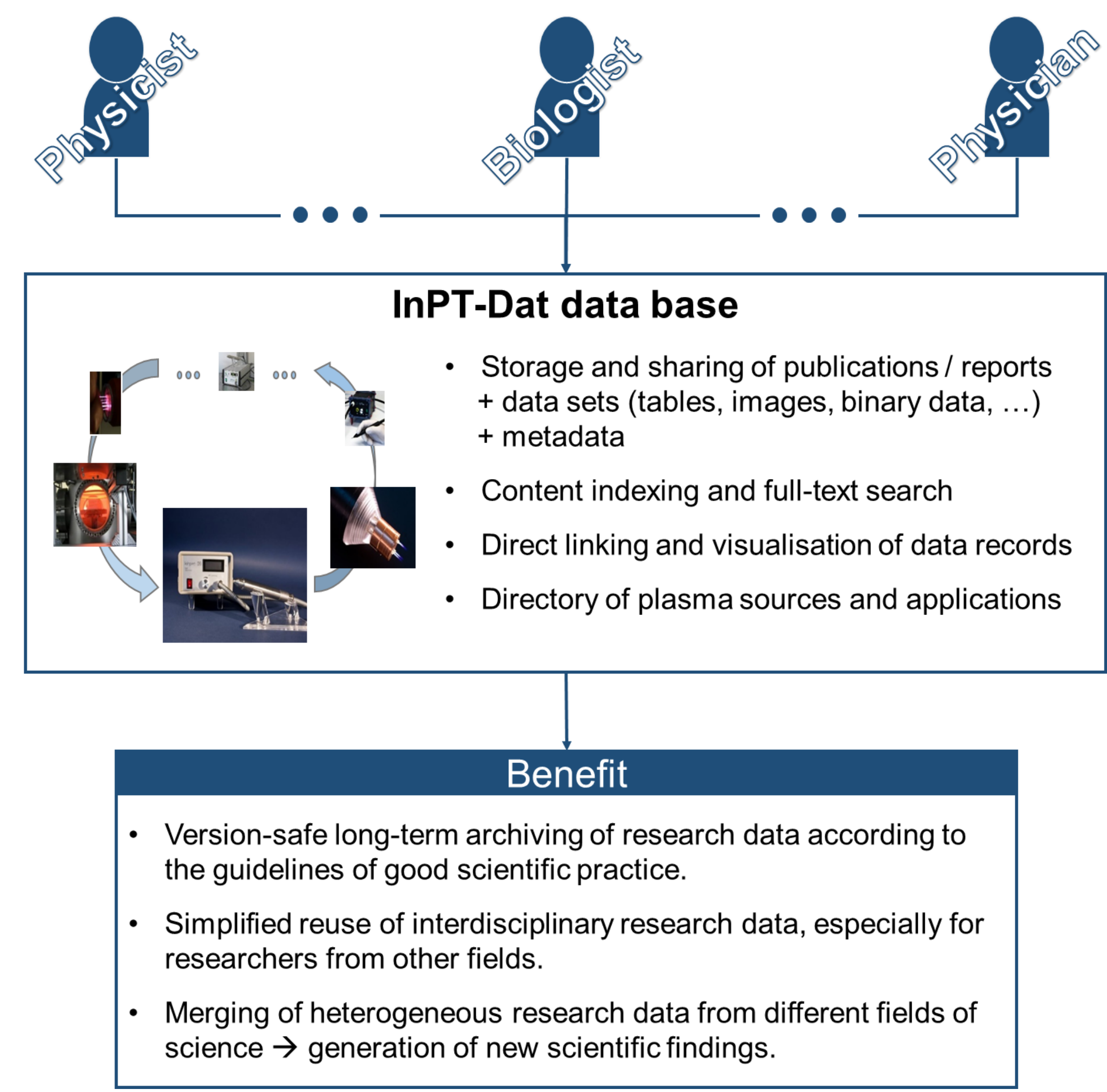


# Research data in plasma technology – Progress of the data platform InPT-Dat

## Introduction

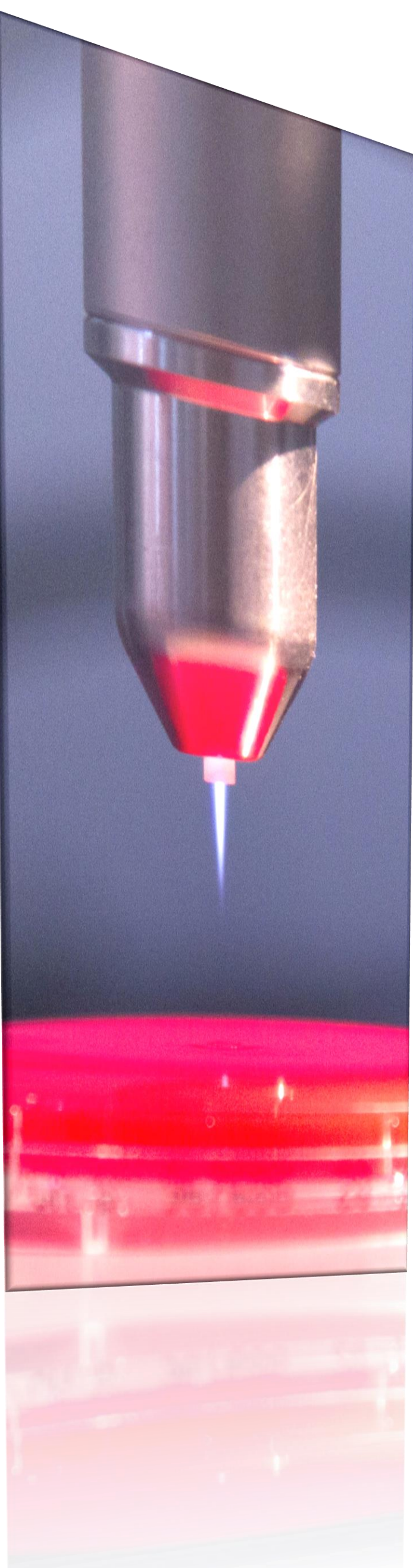
- The project InPT-Dat („Interdisziplinäre Plasmatechnologie-Datenplattform“) aims to tackle the question of how research results in the different fields of low-temperature plasma physics (physics, chemistry, biology, medicine and very recently agriculture) can effectively be linked together and made accessible and reusable for scientists and industry in the different fields.
- The goal of the project is to establish a research data management platform for the collection and provision of research data from all fields of low-temperature plasma science and technology.

## Conception of the data management platform



## Plasma specific metadata

- Goal: development of a metadata scheme for applied plasma physics and plasma medicine



Label	Field (schema.element.qualifier)	Content
Plasma source name	plasma.source.name	Name of the plasma source. (Preferably from a list of names plasma sources.)
Plasma source application	plasma.source.application	Application the plasma source is intended for. (Might be more than one. Preferably from a list of named plasma applications.)
Plasma source properties	plasma.source.properties	Properties of the plasma source. (Power, current amplitude, current waveform, frequency, gas, ...)
Plasma source procedure	plasma.source.procedure	Procedure to prepare the plasma source. This field should also be used to described the whole procedure including medium and target. That is a (standardized) procedure to treat a medium (if relevant) and act on a target (if necessary).

Label	Field (schema.element.qualifier)	Content
Medium name	plasma.medium.name	Medium name the plasma source is acting on or operated in (e.g. water, dry air). The medium is an optional meta datum and must be given only if the action of the plasma on a target is mediated by some substance without presence of a plasma.
Medium properties	plasma.medium.properties	Properties of the medium, like humidity (air), distilled water, ...
Medium procedure	plasma.medium.procedure	Standard procedure to prepare the medium (pre-treatment).

Label	Field (schema.element.qualifier)	Content
Target name	plasma.target.name	Target name the plasma source is acting on either directly or mediated by the above named medium. Can be omitted if only the characterization of a plasma source is intended.
Target properties	plasma.target.properties	Properties of the target (SiO <sub>2</sub> , polymer, bacteria).
Target procedure	plasma.target.procedure	Standard procedure to prepare the Target (pre-treatment).

## References

<https://lucene.apache.org/>  
<http://www.dspace.org>  
<http://invenio-software.org>  
<http://fedora-repository.org>  
<https://ckan.org>  
<https://getdkan.org>

## Status of the data management platform

- The Drupal based open data platform DKAN is used as a basis to establish an institutional research data management platform at INP.
- The integrated DKAN features and Drupal modules for direct data access and online visualization are used for linking related data.

### Data set view

InPT-Dat – The Data Platform for Plasma Technology  
Leibniz Institute for Plasma Science and Technology

Search results for "kINPen® MED":

- Introduction to DIN-specification 91315 based on the characterization of the plasma jet kINPen® MED**  
Plasma Life Science (PL) | Plasma Medicine  
Standardization is an important tool to reduce costs and risks of research. For the innovative field of plasma medicine, no national or international standards could be identified until now. The present study introduces the first German DIN [...]
- Specifications of kINPen MED**  
Plasma Medicine  
This data set gives technical details and specifications of the cold atmospheric pressure plasma source kINPen® MED.
- The Plasma Jet kINPen – A Powerful Tool for Wound Healing**  
Plasma Life Science (PL) | Plasma Medicine  
The development of cold atmospheric pressure plasma sources was the starting point for the innovative field of plasma medicine many years ago. Today, a large body of information is available on the bio- medical and clinical applications of plasma...

Powered by DKAN

### Plasma innovations view

InPT-Dat – The Data Platform for Plasma Technology  
Leibniz Institute for Plasma Science and Technology

Home / kINPen® MED

#### kINPen® MED

Plasma Medicine

**Wound treatment with kINPen® MED (german)**

The kINPen® MED is the first CE certified atmospheric pressure plasma jet approved as a medical device for the treatment of chronic wounds and pathogens of the skin. The new effective treatment method promotes wound healing and has proven to be an effective alternative to standard wound care.

The plasma jet applies a physical cold plasma with a temperature of approx. 37°C precisely to the wound. Textured surfaces, wells and cavities are easily accessible and can be treated evenly. The noble gas argon used for the plasma production guarantees a stable atmosphere around the generated plasma jet and thus a high, constant quality of the treatment.

This innovation is the result of many years of scientific cooperation between the neoplas tools GmbH, the Leibniz Institute for Plasma Science and Technology, the University Medical Center Greifswald, the Charité Berlin and several industry partners.

#### Technical specifications

Authors: Becker, Markus M.  
Plasma Medicine

This data set gives technical details and specifications of the cold atmospheric pressure plasma source kINPen® MED.

**Data and Resources**

- Electrical specifications**  
Specification of frequency, operation mode and power according to the data... [Preview] [Download]
- Gas flow specifications**  
Specification of feed gas and flux according to the data given in... [Preview] [Download]
- Plasma specifications**  
Specification of effluent length, working distance, temperature and UV... [Preview] [Download]

[Download All](#)

#### Reactive species formation and pH value

Recently, it has been shown that measuring the pH regime and detecting the concentrations of NO<sub>2</sub>-, NO<sub>3</sub>-, and H<sub>2</sub>O<sub>2</sub> of a plasma treated liquid are ideal combinations to get first and basic information about chemical reactivity and resulting biological plasma effects and are therefore very useful as comprising output parameters for medical plasma sources.

Treatment time / min	H2O2 concentration / mg/l	NO2- concentration / mg/l	NO3- concentration / mg/l
0	1.0	0.0	0.0
1	2.0	0.2	0.1
2	2.2	0.3	0.1
3	3.8	0.4	0.1
4	4.5	0.5	0.1
5	6.0	0.6	0.1

#### Publications and data sets

Please browse the InPT-Dat data base to find related publications and data sets.

#### Visualization of data sets

Embedding of data sets with metadata

Field	Value
Modified Date	2018-04-30
Release Date	2018-04-30
Permanent identifier (URI)	<a href="http://vpc-inpt-dat/dataset/specifications-kinpen-med">http://vpc-inpt-dat/dataset/specifications-kinpen-med</a>
Permanent identifier (DOI)	Not yet available
Is supplementing (referencing)	<a href="https://doi.org/10.1016/j.cpme.2016.01.001">https://doi.org/10.1016/j.cpme.2016.01.001</a>
Plasma source name	kINPen® MED
Plasma source application	wound healing
Language	English (United States)
License	Creative Commons CCZero
Data assessment	Published
Public access level	Public

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