

## Communicate your research with Nanopublications!

*Achieve more impact.*

*Reach a larger audience.*

*Make your data more findable with search.*

*Contribute to the "Knowledge Space."*

### About LEIbits

Researchers spend the majority of their time twofold – producing output and then looking for the output of others to, in turn, help them produce more output. For both of these activities, computers assist. Unfortunately, the latter activity is a challenge because information produced through research is often hard for the computer to understand; computers like structured information to provide meaningful knowledge. Therefore, the more structured research output is, the better computers can help with research.

**LEIbits is a lean approach to self-reporting research findings in a structured way so that you can more easily keep track, find, use, and share them with the help of the computer.**

### What are Nanopublications?

- Small iterative bits of structured information with associated descriptive information
- Published in the Knowledge Space – an open, decentralized global socio-technical ecosystem to share human knowledge

### How are Nanopublications made?

- Make mini assertions about your research
- Publish the assertions using Nanodash

## Why make Nanopublications now?

- See the impact of your contribution immediately
- Find scientific contributions of your Leiden research peers more easily

## Instructions for creating Nanopublications

### Step 1 - Login to Nanodash

- Login to Nanodash with your ORCID and associated password at:  
[https://orcid.org/signin?client\\_id=APP-W02BIN0XPD5T5PFL&response\\_type=code&scope=%2Fauthenticate&redirect\\_uri=https:%2F%2Fnanodash.knowledgepixels.com%2F%2Forcidlogin%3Fredirect-hash%3Dcdb4ee2aea69cc6a83331bbe96dc2caa9a299d21329efb0336fc02a82e1839a8](https://orcid.org/signin?client_id=APP-W02BIN0XPD5T5PFL&response_type=code&scope=%2Fauthenticate&redirect_uri=https:%2F%2Fnanodash.knowledgepixels.com%2F%2Forcidlogin%3Fredirect-hash%3Dcdb4ee2aea69cc6a83331bbe96dc2caa9a299d21329efb0336fc02a82e1839a8)
- If you do not have ORCID, first make an account at: <https://orcid.org/register>

### Step 2 - Communicate your research

- Choose whether you want to be an **Explorer**, a **Trailblazer**, or a **Pioneer** of Nanopublishing
  - **Explorer**: publish Nanopub #1
  - **Trailblazer**: publish Nanopub #1 and Nanopub #2
  - **Pioneer**: publish Nanopub #1, Nanopub #2, and Nanopub #3.
- Create Nanopublications (or 'Nanopubs') communicating your research using Nanopubs that build upon each other
- Of note: After publishing Nanopub #1, you will be prompted via a pop to introduce yourself with another Nanopub. Follow the instructions accordingly and then continue with the next Nanopubs if you would like to publish more.
- Helpful tip: Prior to opening any templates, consider what research you want to communicate. As an easy way to begin, choose an existing publication of yours where you also published your data in a repository and have both open on your browser..

### Nanopub #1 – Defining a research project

- In the following Nanopub, you are declaring the existence of a research project and describing it with a few key details.

- By doing so, you are making your research project more findable and interoperable.  
<https://nanodash.knowledgepixels.com/publish?26&template=https://w3id.org/np/RA9KrNsJEsvoMVnD3qgbB2rjKZSzeRkRWzt6dgS6En6sl&template-version=latest>
- When you press 'publish' for your first Nanopub, you will be prompted then to create an introduction Nanopub in order to continue. Follow the prompts, and publish your introduction. After doing so, return to your filled in template for Nanopub #1 and press publish.

## Nanopub #2 – Describing a dataset at summary level - simple

- In the following Nanopub, you are declaring the existence of a published dataset, connecting it to the project you introduced in Nanopub #1, and pointing to its location in a repository.
- By doing so, you are making your data more findable and reusable.  
[https://nanodash.knowledgepixels.com/publish?7&template=https://w3id.org/np/RAtp4x4rtAXOJP68aff7PNSBMht\\_goTL8aUObzKHxxNM4&template-version=latest](https://nanodash.knowledgepixels.com/publish?7&template=https://w3id.org/np/RAtp4x4rtAXOJP68aff7PNSBMht_goTL8aUObzKHxxNM4&template-version=latest)

## Nanopub #3 – Expressing a statement as an AIDA sentence

- In the following Nanopub, you are making a claim about your research and linking it to your project, Nanopub 1, and (optionally) your dataset, Nanopub 2.
- By doing so, you are communicating a small bit of information that is more FAIR than claims in ordinary publications.  
[https://nanodash.knowledgepixels.com/publish?13&template=https://w3id.org/np/RA4fmfVFULMP50FqDFX8fEMn66uDF07vXKFXh\\_L9aoQKE&template-version=latest](https://nanodash.knowledgepixels.com/publish?13&template=https://w3id.org/np/RA4fmfVFULMP50FqDFX8fEMn66uDF07vXKFXh_L9aoQKE&template-version=latest)

## What are AIDA sentences? (description copied from link above)

- *Atomic*: a sentence describing one thought that cannot be further broken down in a practical way
- *Independent*: a sentence that can stand on its own, without external references like "this effect" or "we"
- *Declarative*: a complete sentence ending with a full stop that could in theory be either true or false
- *Absolute*: a sentence describing the core of a claim ignoring the (un)certainly about its truth and ignoring how it was discovered (no "probably" or "evaluation showed that"); typically in present tense

You can find more information about AIDA sentences [here](#).

### How do you formulate an AIDA sentence from your research publication?

- One way to help you formulate an AIDA sentence is to ask ChatGPT for a summary of claims in your publication associated with the data you have mentioned in Nanopub 2. Then give it the definition of AIDA (found above or at the top of the Nanopub template) and ask it to turn those claims into AIDA sentences. Double check to make sure they make sense and are directly supported by the publication.
- Here is a set of 4 produced from a publication via this method:
  - Concentrations of sulfur species in ultramarine pigment (i.e. lazurite) derived from heat-treated lapis lazuli differ from those in pigment derived from non-heat-treated lapis lazuli.
  - The concentration of the trisulfur radical ( $S_3^-$ ) in ultramarine pigment (i.e. lazurite) positively correlates with the temperature of heat-treatment applied to the lapis lazuli from which it derives.
  - The intensity of the blue color in ultramarine pigment (i.e. lazurite) positively correlates with the temperature of heat-treatment applied to the lapis lazuli from which it derives.
  - Nonnegative matrix factorization (NMF) separates spectral components of XANES spectra corresponding to contributions from sulfur species in ultramarine pigment (i.e. lazurite).

## Step 3 - Visualize your contribution and those of others

- Explore the 'dashboard'
- For example, look at the repositories being used by Leiden researchers

### What's next?

- Help us help you :) LEIbits templates are a work in progress, and we have some improvements already in the works. We welcome your feedback, which can be given by contacting Kristina and/or Alessa:
  - Kristina:  
<https://www.universiteitleiden.nl/en/staffmembers/kristina-hettne#tab-1>
  - Alessa:  
<https://www.universiteitleiden.nl/en/staffmembers/alessa-gambardella#tab-1>