



Nanonets2Sense

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D6.1 – Report on dissemination activities during first reporting period

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Approvals

Role	Name	Company	Date
Coordinator	M. Mouis	Grenoble INP	28/08/2017
WP6 Leader	Y. Eibinger - Pree	ams AG	28/08/2017

Revisions History

Revision	Date	Modification	Reviewed by
V1.0	01/08/17	Creation	M. Mouis / P. Caulier
V2.0	21/08/17	Update	M. Mouis / Y. Eibinger-Pree / P. Caulier
V3.0	23/08/17	Finalization	All

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Executive summary

This deliverable summarizes the dissemination activities organized by the Nanonets2Sense consortium partners during the first Period of the project (February 1st, 2016 - July 31st, 2017) and provides an outlook of future dissemination plans, to the extent they are known and foreseeable today.

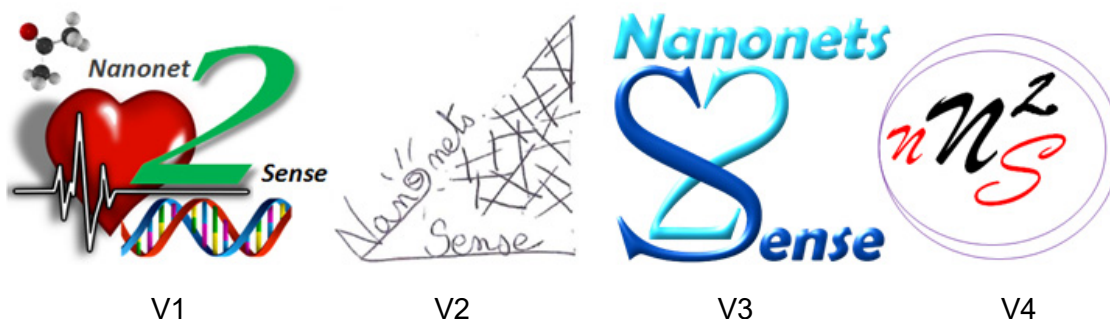
Dissemination of knowledge within and beyond the project has been mostly realized through the Nanonets2Sense website, the presentations given by Nanonets2Sense partners at international conferences and meetings included some invited and participations in National events, as well as publications in high-level peer reviewed international journals listed in the deliverable.

Report

1.1. Definition of project identity

The Nanonets2Sense project identity, very significant for the image of the project, was defined through:

- the Nanonets2Sense Logo, which has been approved by a vote organized during the Kick-off meeting among the 4 logo proposals shown below



The most voted logo (V3) has been included in all document templates and on the website.

- The creation of a website: <http://www.nanonets2sense.eu/>
- Templates for the deliverables, presentations, reports. They are used by Nanonets2Sense partners for every oral or written project communication, presentation at conferences.

All templates are available on the Consortium area of the website.

1.2. Dissemination beyond the project

We will give here an overview of the different channels of communication which were used for dissemination beyond the project. Details can be found in paragraph 1.6.

1.2.1. Website

The **Website** of the Nanonets2Sense project was created in February 2016 (Month 1). It aims at promoting the project and its activities, such as workshops, trainings and competences of Nanonets2Sense partners. Tutorial texts for the general public and more specialized contents for experts address dissemination toward different communities.

A detailed description of the website structure and contents has been given in the Public deliverable D1.1. Dissemination beyond the project is addressed by our website public area. Since its delivery, the website has been further strengthened.

Public area

- **For general public (in partners' native language, i. e. in English, French, Swedish, and German)**
 - General presentation (comprehensive project presentation for non-specialists)
 - major findings and impacts of the project
 - announcements of forthcoming events

- **For Researchers (Scientific and Technological Community)**
 - Project presentation
 - List of Workpackages
 - Main scientific results
 - Achievements
 - Workshops organized
 - Newsletters

- **For Industrials**
 - Project presentation
 - Innovations
 - Future applications

- **For Students**
 - Project presentation
 - Main scientific results
 - Forthcoming events

Shared pages, interesting all targets are also available:

- Breaking News

- Consortium
- Project Motivation
- Dissemination page (Press releases, Newsletters, listing all dissemination activities, including links to published papers, workshops)
- Public Deliverables
- Contact

1.2.2. Press Releases, Leaflets, Newsletters

- A **Press release** was diffused on March 29th, 2016
- **Leaflets**: a first edition was printed in October 2016 and an updated version was distributed in January 2017.
- The launching of the project had been announced in Mina News (January 2016 with a dissemination to Minatec and beyond) and by Grenoble INP IN' Press Newsletter.
- **The first Nanonets2Sense Newsletter is under finalization** to satisfy the need for effective dissemination of project goals and first results. It targets mainly the scientific and technical community and to some extent a more general public. It will be e-mailed to all *Nanonets2Sense* partners, available on LinkedIn, and distributed whenever possible, at conferences, seminars, or events, in order to promote the project.

1.2.3. Dissemination via business and social networks

- A Nanonets2Sense group has been created on LinkedIn in which Publications, Events, Flyers... are indicated
- Some articles were also mentioned on the ams AG Facebook account.

1.2.4. Participation in events addressed to the general public

- KTH participated at “*Nordic Nanolab user Meeting 2107*” in Norway on May 9-10, 2017
- AMS participated at “*Lange Nacht der Forschung*” in Austria on April 22nd, 2016

1.2.5. Publications

Last but not the least, achievements and knowledge gathered within the *Nanonets2Sense* project are widely disseminated through **publications in major international journals** and **participation** of *Nanonets2Sense* members in **international conferences** and workshops.

- **Thesis (1), Master (1) and Engineer (1) dissertations**
- **Publications in high Level scientific journals**

2 journal papers in high-level international journals have been prepared by *Nanonets2Sense* members during this first period.

- **Publications in Conference Proceedings**

2 IEEE Conference Proceedings

- **Participations at International events**

1 Participation of Nanonets2Sense Partners at an international European Project workshop (NEREID)

- **Participation of Nanonets2Sense Partners and Presentations given at major International Conferences and Workshops (EUROSOI-ULIS2017,...)**

This activity has been intense with **10 conference/workshop presentations** (see list of references) given by *Nanonets2Sense* partners during these first 18 months of the project, among which **3 are invited presentations**.

Only publications and presentations which clearly acknowledged the *Nanonets2Sense* project are listed.

1.2.6. Promotion of science among young people from medium and high schools

An information kit about the biomedical sensors developed in the Nanonets2Sense project is being elaborated: **“Demonstrator for scientific vulgarisation: Nanonet based DNA biosensor mock-up” in French by GINP**

Students involved: BOLO Quentin, CARON Rémi, CATHELAIN Nicolas, FANNEAU Pierre, 1st year engineering school PHELMA – Grenoble INP

During 4 months, the students worked on developing a mock-up to explain the principle of the DNA biosensors, with and without label.

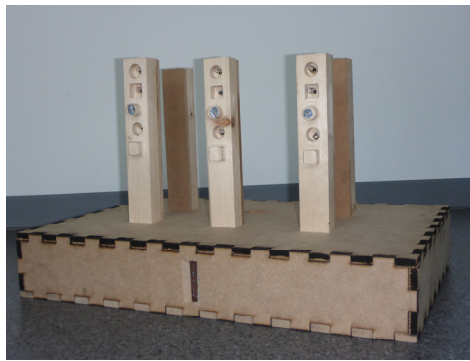
Models of the single strand DNAs (ssDNA) have been built in wood with recessed or protruding shapes (see figure) that model the DNA bases: A (recessed circle), T (protruding circle), C (recessed triangle), G (protruding triangle). Five ssDNA are fixed on a wooden box (40cm*60cm), which represents the nanonet-based transistor.

Five complementary ssDNA and one non-complementary ssDNA are available for demonstration. Upon hybridization, the interlocking of the two complementary wooden DNA closes an electrical circuit and results in two events:

- a light at the top of the double strand DNA is turned on to simulate detection by fluorescence
- a contribution is given to the signal recorded by a level gauge to simulate electrical detection. Sensitivity is modeled by the fact that the signal is all the more intense as more double strand DNAs are present.

A scheme of the mock-up is given in the figure below.

With this mock-up, a poster is being prepared to allow easy presentation at general public events on science such as « Fête de la science » in France.



The different materials and components involved in the sensor will serve as a support to develop “job description sheets” linked to physics, electronics and materials.

1.3. Dissemination within the project

Dissemination of knowledge within the *Nanonets2Sense* project was provided through:

1.3.1. Project meetings

- **2** Governing Board meetings on:
 - Feb.10th, 2016 in Grenoble
 - Feb. 2nd, 2017 in Premstätten
- **1** Governing Board by Teleconference on March 28th, 2017
- Kick-off meeting on February 9-10, 2016 in Grenoble
- **3** Progress meetings on:
 - June 22nd, 2016 in Stockholm
 - Feb. 2nd, 2017 in Premstätten
 - June 30th, 2017 in Lyon
- Regular WPs/Tasks meetings or Teleconferences.

For additional dissemination please find attached the Facebook Post of the F2F Meeting in Premstätten:

<https://www.facebook.com/amsAnalog/photos/a.411735308896776.90175.408877202515920/1342755015794796/?type=3&theater>

1.3.2. The Consortium area of the Nanonets2Sense Website

It contains the following sections, many of which instrumental to the internal dissemination of project results.

D6.1 – Report dissemination activities during first reporting period

- *Publications*
- *Deliverables*
- *Nanonets2Sense meetings (Presentations & Minutes)*
- *Management documents*
- *Templates and Logos*
- *Agenda*
- *Mailing lists*
- *Nanonets2Sense reports*
- *Milestones*

1.4. PhDs and Post doc researchers:

As PhDs and Post Docs who develop or use Nanonets2Sense research and achievements will contribute to disseminate its results in the next years, it is thus worth recording their involvement in the project, however incomplete that might be. During this first period, there was a significant number of PhDs and Post-docs working in connection with the Nanonets2Sense project as per the list below:

Number of Students, PHds & Post Doc working partially on Nanonets2Sense during the 1 st Period (01/02/2016 - 31/07/2017)									
	Total Students	Total PhDs	Total Post Docs	WP2	WP3	WP4	WP5	WP6	Total
GINP	7	6	1						7
<i>LTM</i>	0								
<i>LMGP</i>	4	3	1	x					
<i>IMEP</i>	3	3				x			
KTH	1	1			x				1
CCS	0								0
ams	0								0
Total		7	1						8

1.5. Recapitulative Table

As announced in the DOA, the Nanonets2Sense Dissemination is based on the broad following strategy:

- **Dissemination targeting primarily academia:** *Publications at conferences and in journals (also with open access journals) , Newsletter, Workshop*
- **Dissemination targeting primarily industry:** *Newsletter, joint publications with industrial partner organizations, and dissemination via business networks (LinkedIn),...*
- **Dissemination targeting primarily policy makers:** *Newsletter, via ECSEL, ENIAC...*
- **Dissemination targeting primarily the wider public:** *Public area of the Website, Press release, Newsletters, Public Deliverables.*

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The following table summarizes the actions done during this first Period as a function of targeted public:

Actions done / Targets	Wider Public	Academia	Industry	Policy Makers
Website	x	x	x	x
Press Release	x	x	x	x
Leaflets		x	x	
Newsletter		x	x	x
<i>Dissemination via business networks</i>		x	x	x
Participation in events addressed to the general public	x	x		
Publications		x	x	
Presentations at events / Conferences		x	x	
Educational Mock-up	x			

1.6. References

NANONETS2SENSE - LIST OF DISSEMINATION ACTIVITIES – PARTICIPATION AT WORKSHOPS, CONFERENCES...M1-M18									
NO.	Type of activities¹	Main leader/ author Partners involved	Title of event	Title of paper/presentation/etc. Emphasize if invited	Date	Place	Type of audience²	Size of audience	Countries addressed
1	Conference	G. Jayakumar , P.-E. Hellström and M. Östling: KTH M. Legallais, M. Mouis, V. Stambouli, C. Ternon: GINP	<i>SPIE Optics + Photonics, Nanoscience and Engineering Biosensing session</i>	<i>Fabrication and characterization of high-K dielectric integrated silicon nanowire sensor for DNA sensing application</i>	28 Aug- 1 Sep 2016	San Diego, USA	Research community	4500	Worldwide
2	Conference	M. Legallais , P. Serre, S. Bassem, T. Baron, V. Stambouli, M. Mouis et C. Ternon, GINP	<i>EMN Meeting on Nanowires, Nanonet Properties and Applications</i>	<i>Fabrication of Si nanonet field effect transistors by microelectronic processes</i> INVITED	May 16-19, 2016	Amsterdam, Netherlands	Scientists	100	European
3	Conference	C. Ternon , P. Serre, T. Luciani, T. Baron, GINP	<i>EMN Meeting on Nanowires,</i>	<i>In-depth study of percolating behavior of silicon nanonets</i> INVITED	May 16-19, 2016	Amsterdam, Netherlands	Scientists	100	European
4	Conference	T. Demes , C. Ternon, M. Langlet, V. Stambouli, D. Riassetto, GINP	<i>EMN Meeting on Nanowires, ZnO nanowires</i>	<i>Comprehensive study of ZnO nanowires grown by hydrothermal synthesis</i> INVITED	May 16-19, 2016	Amsterdam, Netherlands	Scientists	100	European
5	Workshop	M. Legallais, T. Demes, R. Bange, C. Ternon, E. Bano, M. Mouis, T. Baron, B. Salem, V. Stambouli, GINP	<i>8th Franco-Spanish Workshop IBERNAM-CMC2</i>	<i>Semiconductive nanostructures for electrical DNA detection</i>	October 13-14, 2016	Toulouse, France	Scientists	80	European

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6	Workshop	<i>F. Morisot, T. Demes, A. Calais, E. Pernot, C. Jimenez, C. Ternon, V. Stambouli, GINP</i>	<i>3th International Workshop Surfocap CMC2</i>	<i>Toward an eco-friendly DNA grafting process based on epoxy silane functionalization</i>	<i>May 30-31, 2017</i>	<i>Besançon, France</i>	<i>Scientists</i>	<i>100</i>	<i>European</i>
7	Conference	<i>T. Cazimajou, M. Legallais, M. Mouis, C. Ternon, B. Salem, G. Ghibaudo, GINP</i>	<i>EuroSOI-ULIS 2017</i>	<i>Electrical Characterization of Percolating Silicon Nanonet FETs for sensing applications</i>	<i>April 3-5, 2017</i>	<i>Athens, Greece</i>	<i>Scientists, Students</i>	<i>100</i>	<i>Worldwide</i>
8	Conference	<i>M. Legallais ; T. T. T. Nguyen ; M. Mouis ; B. Salem ; C. Ternon, GINP</i>	<i>EuroSOI-ULIS 2017</i>	<i>Toward the integration of Si nanonets into FETs for biosensing applications</i>	<i>April 3-5, 2017</i>	<i>Athens, Greece</i>	<i>Scientists, Students</i>	<i>100</i>	<i>Worldwide</i>
9	Conference	<i>M. Legallais, P. Serre, B. Salem, T. Baron, V. Stambouli, M. Mouis et C. Ternon, GINP</i>	<i>12^{ème} Journée Sol-Gel et Chimie Liquide Rhône-Alpes-Auvergne</i>	<i>De l'élaboration de nanonets de silicium par voie liquide à la fabrication de transistors à effet de champ</i>	<i>March 24th, 2016</i>	<i>St-Etienne, France</i>	<i>Scientific</i>	<i>20</i>	<i>France</i>
10	Conference	<i>T. Demes, C. Ternon, M. Langlet, V. Stambouli, D. Riassetto, GINP</i>	<i>12^{ème} Journée Sol-Gel et Chimie Liquide Rhône-Alpes-Auvergne</i>	<i>Study of hydrothermally grown ZnO nanowires. Towards ZnO nanonet-based electrical DNA biosensors</i>	<i>March 24th, 2016</i>	<i>St-Etienne, France</i>	<i>Scientific</i>	<i>20</i>	<i>France</i>

NANONETS2SENSE - LIST OF DISSEMINATION ACTIVITIES - PRESS RELEASES AND NEWSLETTERS... M1-M18

N°O.	Type of media	Organizer/ Partners involved	Title	Date	Type of audience	Countries addressed
1	<i>Press release</i>	<i>GINP, SINANO & all partners</i>	<i>1st Nanonets2Sense Press Release</i>	<i>April 2016</i>	<i>Scientific</i>	<i>European</i>
2	<i>Flyer</i>	<i>GINP, SINANO & all partners</i>	<i>1st edition of the Nanonets2Sense Flyer</i>	<i>October 2016</i>	<i>Scientific</i>	<i>European</i>
3	<i>Flyer</i>	<i>GINP, SINANO & all partners</i>	<i>2nd edition of the Nanonets2Sense Flyer</i>	<i>January 2017</i>	<i>Scientific</i>	<i>European</i>
4	<i>Newsletter</i>	<i>GINP, SINANO & all partners</i>	<i>1st Nanonets2Sense Newsletter</i>	<i>August 2017</i>	<i>Scientists, Students, ...</i>	<i>European</i>

PROJECT PRESENTATIONS AT EVENTS ON NATIONAL AND INTERNATIONAL LEVEL BY NANONETS2SENSE PARTNERS M1-M18						
Organizer/Partners involved	Title of event	Date	Place	Type of audience	Size of audience	Countries addressed
<i>P.-E. Hellström, KTH</i>	<i>Nordic Nanolab user Meeting 2107</i>	<i>May 9-10, 2017</i>	<i>Trondheim, Norway</i>	Scientific	120	Sweden, Norway, Denmark, Finland, Island
<i>M. Mouis, GINP</i>	<i>NEREID « Smart Sensors » Workshop</i>	<i>Oct. 21st, 2016</i>	<i>Bertinoro, Italy</i>	Scientifics	25	European
<i>Y. Eibinger-Pree, AMS</i>	<i>Lange Nacht der Forschung 2016</i>	<i>April 22nd, 2016</i>	<i>Premstätten, Austria</i>	Wider Public	1000	Austria

LIST OF ALL SCIENTIFIC PEER REVIEWED PUBLICATIONS RELATING TO THE FOREGROUND OF THE PROJECT BY NANONETS2SENSE PARTNERS M1-M18 <i>Publications can be: Article in Journal, Publication in Conference/Workshop Proceedings, Chapter in a Book, Thesis/Dissertation</i>										
No.	Title	Main author, Partners involved	Title of the Journal/ Proceedings/ Book...	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	ISBN	Permanent identifiers (if available) DOI
1	Comprehensive study of hydrothermally grown ZnO nanowires	T. Demes , C. Ternon, D. Riassetto, V. Stambouli and M. Langlet : GINP	Journal of Materials Science	Volume 51, Issue 23	Springer		August 12, 2016	pp 10652-10661		DOI 10.1007/s10853-016-0287-8
2	Mechanisms involved in the hydrothermal growth of ultra-thin and high aspect ratio ZnO	T. Demes , C. Ternon, F. Morisot, D. Riassetto, M. Legallais, H. Roussel, M.	Applied Surface Science	Vol. 410	Elsevier		March 10, 2017	423-431		https://doi.org/10.1016/j.apsusc.2017.03.086

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	nanowires	Langlet : GINP								
3	Toward the integration of Si nanonets into FETs for biosensing applications	M. Legallais, T. T. T. Nguyen, M. Mouis, B. Salem and C. Ternon: GINP	2017 Joint International EUROSIOI Workshop and International Conference on Ultimate Integration on Silicon (EUROSIOI-ULIS)		IEEE Xplore	Athens, Greece	April 3-5, 2017	231-234	978-1-5090-5313-1	DOI: 10.1109/ULIS.2017.7962570
4	Electrical characterization of percolating silicon nanonet FETs for sensing applications	T. Cazimajou, M. Legallais, M. Mouis, C. Ternon, B. Salem and G. Ghibaudo: GINP	2017 Joint International EUROSIOI Workshop and International Conference on Ultimate Integration on Silicon (EUROSIOI-ULIS)		IEEE Xplore	Athens, Greece	April 3-5, 2017	23-26	978-1-5090-5313-1	DOI: 10.1109/ULIS.2017.7962591
5	Croissance, assemblage et intégration collective de nanofils de ZnO : Application à la biodétection	T. Demes: GINP	PhD Thesis, Communauté Université Grenoble Alpes				March 17, 2017			
6	Fonctionnalisation de nanonets de ZnO, pour la détection électrique d'ADN sans marquage, validée par détection de fluorescence	F. Morisot: GINP	Master Thesis Université Bourgogne-Franche Comté				2016			
7	Nanonets de ZnO pour la détection électrique d'acétone	F. Morisot: GINP	Dissertation ESIREM Dijon				2016			

Conclusions & Outlook

The first period of the Nanonets2Sense project has seen an interesting dissemination and promotion activity.

Knowledge gathered within the Nanonets2Sense project has been widely disseminated through the **publications in major international journals** and **participation** of Nanonets2Sense members in **international conferences/workshops**. In particular, **2** papers for international journals and 2 for Conference Proceedings have been prepared and **10 conference/workshop presentations** have been given by Nanonets2Sense partners during this period, among which **3 are invited presentations**.

As an outlook toward the near future, **the first Nanonets2Sense Newsletter is under finalization**. It will be e-mailed to all Nanonets2Sense partners and distributed as wide as possible to the scientific community. A participation in the European Forum for Electronic Components and Systems (EFECS) has been considered and planned for December 5-7, 2017 in Brussels. Additional events and participations are foreseen.