

## **Vacancies Holst Centre**

HOLST CENTRE is an Open Innovation research centre founded by TNO and IMEC and located on the High Tech Campus in Eindhoven. It executes "shared research programs" in which industrial partners participate. Since its start in 2005 it has grown from 10 to 160 researchers of 28 nationalities, now working in programs with over 20 companies.

Holst Centre continues to grow. In the area of "Systems in Foil" (aimed at large-area, thin-film flexible electronic devices) a number of job positions are open to talented starters, researchers and engineers who recently completed their education at BSc, MSc or PhD level and who aim to further develop their talents in an internationally oriented applied research environment. The following pages describe these vacancies.

Further information, including how to apply, can be found at [www.holstcentre.com](http://www.holstcentre.com).

Eindhoven, the Netherlands, April 2010

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# Researcher Laser Processing of flexible Electronics

## Job description:

You will be working on the development of laser processes to fabricate flexible electronics in particular selective ablation of thin organic and inorganic layers as part of large area multilayer stacks. At the interface between applied laser technology and material science you will work in a multidisciplinary research environment. As a member of the Holst Centre Program "Integration Technologies for Flexible Systems" you will develop and apply new laser setups including systems employing picosecond and nanosecond laser sources. These processes will find applications in the field of large area flexible organic lighting (flexible OLED), organic photovoltaics (OPV), new flexible sensor systems and intelligent and communicative packaging. Your tasks and responsibilities include:

- Development of laser laboratory equipment for thin film structuring with commercially available nanosecond and picosecond laser sources;
- Planning and execution of experiments, processing tests and laboratory demonstrations;
- Development of models describing the laser/material interaction processes for flexible electronics;
- Investigation of problems related to re-deposition phenomena associated with thin film ablation;
- Definition of research themes;
- Generating innovative approaches to improve laser processes and equipment and securing IP and publication of results in scientific journals;
- Setting up and expanding a scientific network with researchers in the industry and academia and establishing cooperations.

## Profile:

You are a researcher with affinity to applied and experimental research with the following background:

- PhD in applied physics, material science, mechanical engineering, process engineering, or similar
- Up to 3 years of relevant working experience;
- Hands-on mentality, good organizational and communication skills;

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## Printing Process Engineer

### Job description:

You will be working at the interface of materials science and process technology in a multidisciplinary research environment. You will research and develop advanced printing methodologies for the deposition of functional materials on thin flexible substrates. Your tasks and responsibilities will be:

- You will be responsible for contact printing of electro-active materials for OLED and OPV applications;
- You will supervise the currently installed and future new contact printing equipment in our clean room, such as gravure, flexo and rotary screen modules. This includes equipment operation, maintenance and upgrade work;
- You will translate printing research topics into experimental set-ups and equipment configurations;
- You will conduct experiments in close collaboration with other researchers.

### Profile:

You are a motivated process engineer and familiar with printing processes and contact printing equipment. You have the following profile:

- B.Sc. degree in chemical technology, physics, mechanical or electrical engineering or equivalent through experience;
- Up to 3 years of relevant experience in organic electronics and/or contact printing;
- Ability to maintain and upgrade contact printing equipment and suggest and implement modifications;
- Hands-on mentality, good organizational and communicational skills;
- Pro-active attitude and ability to work independently/autonomously;
- Good communicational skills in English.

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## Researcher Integration Processes (R2R)

### Job description:

You will be working at the interface of mechanical engineering and process technology in a multidisciplinary research environment. As a member of the Holst Centre Program "Integration Technologies for Flexible Systems" you will develop and apply Roll-to-Roll (R2R) hardware and fabrication processes. These processes will find applications in the field of large area flexible organic lighting (flexible OLED), organic photovoltaics (OPV), new flexible sensor systems and intelligent and communicative packaging. Your tasks and responsibilities include:

- Development of R2R laboratory equipment for laser structuring and thin component integration;
- Planning and execution of experiments, processing tests and laboratory demonstrations;
- Development of models describing the R2R integration processes for flexible electronics considering thermal and mechanical aspects;
- Investigation of problems related to foil-to-foil integration, heterogeneous integration of ultra-thin components with focus on precision and control engineering;
- Definition of research themes;
- Generating innovative approaches to improve R2R equipment and processes and securing IP and publication of results in scientific journals;
- Setting up and expanding a scientific network with researchers in the industry and academia and establishing cooperations.

### Profile:

You are a researcher with affinity to applied and experimental research with the following background:

- PhD in mechanical engineering, process engineering, physics or similar
- Up to 3 years of relevant working experience;
- Hands-on mentality, good organizational and communication skills;

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# Thin Film Barrier Printing Researcher

## **Job description:**

You will be working at the interface of materials science and process technology in a multidisciplinary research environment. You will research and develop printing processes for application of high-end barriers for OLED and OPV applications. Your tasks and responsibilities will be:

- Setting-up a printing facility for optimization of in-line and roll-to-roll printing of barrier layers
- Optimisation of printing processes for low-cost and high speed application of barrier layers for OLEDs and OPV
- Integration of printing process in an integrated roll-to-roll pre-pilot line for barrier foils
- Translating relevant research topics into experimental plans
- Generating results that are either patentable or publishable in internationally renowned journals
- Working in a multidisciplinary, multi-company team on a daily basis
- Reporting technical progress both in written and oral form on a regular basis

## **Profile:**

You are a motivated process engineer and familiar with thin film processes. You have the following profile:

- Ph.D. degree in chemical technology, physics, mechanical or electrical engineering or equivalent through experience;
- Up to 3 years of relevant experience in vacuum or wet-chemical processing
- Hands-on mentality, good organizational and communication skills
- Pro-active attitude and ability to work independently/autonomously
- Good communication skills in English

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## OLED Process Engineer

### **Job description:**

You will be working at the interface of materials science and process technology in a multidisciplinary research environment. You will research and develop advanced device concepts for flexible organic light-emitting devices (OLEDs) for lighting and signage applications, including hands-on fabrication of OLED prototypes and performance analysis. Your tasks and responsibilities will be:

- Fabrication of OLED devices based on innovative concepts
- Performing electrical and optical characterization to assess the performance of new device architectures and outcoupling techniques
- Translating relevant research topics into experimental plans
- Generating results that are either patentable or publishable in internationally renowned journals
- Working in a multidisciplinary, multi-company team on a daily basis
- Reporting technical progress both in written and oral form on a regular basis

### **Profile:**

You are a motivated process engineer and familiar with thin film processes. You have the following profile:

- B.Sc. or M.Sc degree in chemical technology, physics, mechanical or electrical engineering or equivalent through experience
- Up to 3 years of relevant experience in a clean room environment and with wet-chemical processing
- Hands-on mentality, good organizational and communication skills
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# Thin Film Barrier Process Engineer

## Job description:

You will be working at the interface of materials science and process technology in a multidisciplinary research environment. You will research and develop advanced barrier concepts for OLED and OPV applications, including hands-on fabrication of flexible OLED prototypes and performance analysis. Your tasks and responsibilities will be:

- Fabrication of flexible OLED devices based on innovative barrier concepts
- Performing mechanical, lifetime, and optical characterization to assess the performance of new barrier designs
- Translating relevant research topics into experimental plans
- Generating results that are either patentable or publishable in internationally renowned journals
- Working in a multidisciplinary, multi-company team on a daily basis
- Reporting technical progress both in written and oral form on a regular basis

## Profile:

You are a motivated process engineer and familiar with thin film processes. You have the following profile:

- M.Sc degree in chemical technology, physics, mechanical or electrical engineering or equivalent through experience;
- Up to 3 years of relevant experience in a clean room environment and with wet-chemical processing
- Hands-on mentality, good organizational and communication skills
- Pro-active attitude and ability to work independently/autonomously
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## Scientist Optics

### Job description:

You will be working at the interface of materials science, device engineering and process technology in a multidisciplinary research environment. You will research and develop advanced light management concepts for optimization of OLED and OPV applications. Your tasks and responsibilities will be:

- Performing optical characterization to assess the performance of novel device concepts
- Optimization of light outcoupling and light incoupling concepts for OLED and OPV devices respectively using advanced modeling tools
- Translating modeling results into experimental plans
- Generating results that are either patentable or publishable in internationally renowned journals
- Working in a multidisciplinary, multi-company team on a daily basis
- Reporting technical progress both in written and oral form on a regular basis

### Profile:

You are a motivated optical engineer and familiar with thin film processes. You have the following profile:

- Ph.D. degree in physics, mathematics, electrical engineering or chemical technology or equivalent through experience
- Up to 3 years of relevant experience in thin film optics
- Hands-on mentality, good organizational and communication skills
- Pro-active attitude and ability to work independently/autonomously
- Good communication skills in English

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# Printing Process Engineer

## Job description:

You will be working at the interface of materials science and process technology in a multidisciplinary research environment. You will research and develop advanced printing methodologies for the deposition of functional materials on thin flexible substrates. Your tasks and responsibilities will be:

- You will be part of the team that develops technology for sheet-to-sheet and roll-2-roll printing of functional materials, in particular metal based inks, for several plastic electronic applications, like OLED, photovoltaic and smart packaging.
- You will translate printing research topics into experimental set-ups and equipment configurations;
- You will conduct experiments in close collaboration with other researchers.

## Profile:

You are a motivated process engineer and familiar with printing processes and printing equipment. You have the following profile:

- B.Sc. degree in chemical technology, material science, physics, or mechanical engineering or equivalent through experience;
- Up to 3 years of relevant experience in organic electronics and/or inkjet printing and/or screen printing;
- Ability to maintain and upgrade printing equipment and suggest and implement modifications;
- Hands-on mentality, good organizational and communicational skills;
- Pro-active attitude and ability to work independently/autonomously;
- Good communicational skills in English.