Henri Jansen - DTU Orbit (01/11/2017)

Henri Jansen

Research areas
Applied physics and engineering in general. Present research covers plasma etching and physics, accurate nanofabrication, design and fabrication of 3 dimensional (3D) nanodevices, nanoporous membranes, Knudsen transport, clean water and sustainability, energy harvesting, black silicon for super-hydrophobicity and solar heat conversion, and X-ray and gravitational sensors for space applications. Previous research covers Communication, Radar and Sonar technology, MEMS fabrication, RF MEMS, micropropulsion for deep space, theory and application of microfluidics, capillary action, cell trapping, microscopic gas transport, hydrogen separation, edge and corner lithography and fractal fabrication.

Organisations
Professor, DTU Danchip
10/03/2015 → present
henrija@dtu.dk
VIP

Publications:

Microfabrication of gratings for X-ray Imaging

General information
State: Published
Organisations: DTU Danchip, Department of Micro- and Nanotechnology, Silicon Microtechnology, Department of Physics, Neutrons and X-rays for Materials Physics, Technical University of Denmark
Authors: Silvestre, C. (Intern), Christiansen, E. D. (Ekstern), Zeng, Y. (Ekstern), Kehres, J. (Intern), Jansen, H. (Intern), Hansen, O. (Intern)
Publication date: 2017
Main Research Area: Technical/natural sciences
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Source-ID: 137622501
Publication: Research - peer-review › Poster – Annual report year: 2017

Microfabrication of X-Ray grating for Talbot Interferometry

General information
State: Published
Organisations: DTU Danchip, Department of Micro- and Nanotechnology, Silicon Microtechnology
Authors: Silvestre, C. (Intern), Chang, B. (Intern), Jansen, H. (Intern), Hansen, O. (Intern)
Publication date: 2017
Main Research Area: Technical/natural sciences
X-ray gratings, Dry etching, Talbot interferometer
Electronic versions:
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Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2017

Design and fabrication of in-plane AFM probes with sharp silicon nitride tips based on refilling of anisotropically etched silicon moulds
In this paper a micromachining method for batch fabrication of in-plane atomic force microscope (AFM) probes that consist of a sharp silicon nitride tip on a monocrystalline silicon cantilever is presented. The tips are realized by conformal deposition of silicon nitride inside an anisotropically etched cavity inside a silicon wafer. The best measured radius of the sharp tips was 8 nm. Our fabrication method is fully compatible with silicon-on-insulator (SOI) micromachining, allowing a straightforward monolithic integration of the AFM probes with high-aspect-ratio monocrystalline silicon MEMS. The fabrication method allows for lateral cantilevers, which oscillate in the plane of the fabrication wafer. This allows for simple integration of micromechanical transducers, opening the way towards dedicated probes for high speed AFMs. To demonstrate the innovation potential of this method, three different probe designs were fabricated: a plane passive AFM probe, a probe with integrated electrostatic actuator, and a probe which allows scanning on vertical sidewalls. The passive
probes were successfully tested in a commercial AFM set-up. Correct operation of the probes with integrated actuator was demonstrated by actuation under a laser vibrometer.

**General information**

State: Published  
Organisations: University of Twente  
Authors: Geerlings, J. (Ekstern), Sarajlic, E. (Ekstern), Berenschot, J. W. (Ekstern), Siekman, M. H. (Ekstern), Jansen, H. V. (Intern), Abelmann, L. (Ekstern), Tas, N. R. (Ekstern)  
Number of pages: 16  
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Main Research Area: Technical/natural sciences

**Publication information**

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ISSN (Print): 0960-1317  
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Web of Science (2017): Indexed yes  
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Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 1  
Scopus rating (2015): SJR 0.64 SNIP 1.211 CiteScore 1.96  
Web of Science (2015): Indexed yes  
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Scopus rating (2014): SJR 0.725 SNIP 1.224 CiteScore 1.84  
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Scopus rating (2013): SJR 0.611 SNIP 1.055 CiteScore 1.74  
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Web of Science (2013): Indexed yes  
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Scopus rating (2012): SJR 0.856 SNIP 1.402 CiteScore 1.92  
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Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 1  
Scopus rating (2011): SJR 1.038 SNIP 1.437 CiteScore 2.43  
ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 1  
Scopus rating (2010): SJR 1.019 SNIP 1.634  
Web of Science (2010): Indexed yes  
BFI (2009): BFI-level 1  
Scopus rating (2009): SJR 1.17 SNIP 1.517  
Web of Science (2009): Indexed yes  
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Scopus rating (2008): SJR 1.27 SNIP 1.634  
Web of Science (2008): Indexed yes  
Scopus rating (2007): SJR 1.437 SNIP 1.837  
Web of Science (2007): Indexed yes  
Scopus rating (2006): SJR 1.341 SNIP 2.118  
Web of Science (2006): Indexed yes  
Scopus rating (2005): SJR 1.28 SNIP 2.116  
Web of Science (2005): Indexed yes
Projects:

**Smooth advanced silicon NEMS devices**

DTU Danchip  
Period: 01/12/2017 → …  
Number of participants: 1  
Project participant:  
Jansen, Henri (Intern)  
Project

**Microfabrication Technology for X-ray Optical Elements**

Department of Micro- and Nanotechnology  
Period: 01/03/2017 → 29/02/2020  
Number of participants: 3  
Phd Student:  
Silvestre, Chantal (Intern)  
Supervisor:  
Jansen, Henri (Intern)  
Main Supervisor:  
Hansen, Ole (Intern)

**Financing sources**

Source: Internal funding (public)  
Name of research programme: Samfinansieret - Andet  
Project: PhD