

# LIST OF PUBLICATIONS

## Eero Noponen

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## Academic theses

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- Master's Thesis: "Rigorous Diffraction Analysis of Computer-Generated Gratings"  
 (Helsinki University of Technology, Espoo, 1991).  
 Licentiate Thesis: "Rigorous Diffraction Theory of Computer-Generated Gratings"  
 (Helsinki University of Technology, Espoo, 1992).  
 Doctoral Dissertation: "Electromagnetic Theory of Diffractive Optics"  
 (Helsinki University of Technology, Espoo, 1994).

## Articles in international scientific journals with referee practice

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| 2007 | 1. E. Noponen, A. Tamminen, and M. Vaaja, "Design of transmission-type phase holograms for a compact radar-cross-section measurement range at 650 GHz", <i>Applied Optics</i> <b>46</b> , 4181–4196 (2007).  |
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| 2002 | 3. J. Salo, J. Meltaus, E. Noponen, M. M. Salomaa, A. Lönnqvist, T. Koskinen, V. Viikari, J. Säily, J. Häkli, J. Ala-Laurinaho, J. Mallat, and A. V. Räisänen, "Holograms for shaping radio-wave fields", <i>Journal of Optics A: Pure and Applied Optics</i> <b>4</b> , S161–S167 (2002).               |
| 2001 | 4. J. Salo, J. Meltaus, E. Noponen, J. Westerholm, M. M. Salomaa, A. Lönnqvist, J. Säily, J. Häkli, J. Ala-Laurinaho, and A. V. Räisänen, "Millimeter-wave Bessel beams using computer holograms", <i>Electronics Letters</i> <b>37</b> , 834–835 (2001).  |
|      | 5. K. Blomstedt, E. Noponen, and J. Turunen, "Surface-profile optimization of diffractive 1:1 imaging lenses", <i>Journal of the Optical Society of America A</i> <b>18</b> , 521–525 (2001).  |
| 1998 | 6. R.-P. Salmio, J. Saarinen, and E. Noponen, "Ion-exchanged diffractive elements in glass for substrate-mode optics", <i>Applied Optics</i> <b>37</b> , 5093–5098 (1998).   |
| 1997 | 7. V. Kettunen, P. Vahimaa, J. Turunen, and E. Noponen, "Zeroth-order coding of complex amplitude in two dimensions", <i>Journal of the Optical Society of America A</i> <b>14</b> , 808–815 (1997).   |
| 1996 | 8. J. Turunen, P. Vahimaa, M. Honkanen, O. Salminen, and E. Noponen, "Zeroth-order complex-amplitude modulation with dielectric Fourier-type diffractive elements", <i>Journal of Modern Optics</i> <b>43</b> , 1389–1398 (1996).  |
|      | 9. E. Noponen and J. Turunen, "Complex-amplitude modulation by high-carrier-frequency diffractive elements", <i>Journal of the Optical Society of America A</i> <b>13</b> , 1422–1428 (1996).  |
|      | 10. J. Turunen and E. Noponen, "V-groove gratings on silicon for infrared beam splitting: comment", <i>Applied Optics</i> <b>35</b> , 807–808 (1996).  |
| 1995 | 11. J. Saarinen, E. Noponen, and J. Turunen, "Guided-mode resonance filters of finite aperture", <i>Optical Engineering</i> <b>34</b> , 2560–2566 (1995).  |
|      | 12. J. Saarinen, E. Noponen, J. Turunen, T. Suhara, and H. Nishihara, "Asymmetric beam deflection by doubly grooved binary gratings", <i>Applied Optics</i> <b>33</b> , 2401–2405 (1995).  |
|      | 13. E. Noponen, J. Turunen, and F. Wyrowski, "Synthesis of paraxial-domain diffractive elements by rigorous electromagnetic theory", <i>Journal of the Optical Society of America A</i> <b>12</b> , 1128–1133 (1995).  |
| 1994 | 14. J. M. Miller, J. Turunen, E. Noponen, A. Vasara, and M. R. Taghizadeh, "Rigorous modal theory for multiply grooved lamellar gratings", <i>Optics Communications</i> <b>111</b> , 526–535 (1994).   |
|      | 15. E. Noponen and J. Turunen, "Eigenmode method for electromagnetic synthesis of diffractive elements with three-dimensional profiles", <i>Journal of the Optical Society of America A</i> <b>11</b> , 2494–2502 (1994).  |
|      | 16. E. Noponen and J. Turunen, "Binary high-frequency-carrier diffractive optical elements: electromagnetic theory", <i>Journal of the Optical Society of America A</i> <b>11</b> , 1097–1109 (1994).  |

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- 2007 28. J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, J. Mallat, E. Noponen, A. Tamminen, M. Vaaja, V. Viikari, A. V. Räisänen, and J. Lemanczyk, "Tests of a 1.5-m reflector antenna in a 650 GHz hologram CATR", *Proc of the European Conference on Antennas and Propagation (EuCAP 2007)*, Edinburgh, UK, 11–16 November 2007, paper Tu1.5.2.
29. A.V. Räisänen, J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, J. Mallat, E. Noponen, A. Tamminen, M. Vaaja, and V. Viikari, "How to test a high-gain antenna at THz frequencies?," (invited), in *Proc. of the 19th Int. Conf. on Applied Electromagnetics and Communications (ICECom2007)*, Dubrovnik, Croatia, 24–26 September 2007, pp. 131–134.
30. A. V. Räisänen, J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, J. Mallat, E. Noponen, A. Tamminen, M. Vaaja, and V. Viikari, "Compact antenna test range based on a computer-generated hologram and its use at submillimeter wavelengths" (invited plenary), *Proc. of the Loughborough Antennas and Propagation Conference (LAPC2007)*, Loughborough, UK, 2–3 April 2007, pp. 23–26.
31. A.V. Räisänen, J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, J. Mallat, E. Noponen, A. Tamminen, M. Vaaja, and V. Viikari, "Measurement of a high-gain antenna at 650 GHz in a hologram-based CATR," *Proc. of the 18th International Symposium on Space Terahertz Technology (ISSTT2007)*, Pasadena, Ca., USA, March 20–22, 2007, paper 7-3.
32. J. Häkli, T. Koskinen, A. Lönnqvist, J. Ala-Laurinaho, V. Viikari, A. Karttunen, M. Vaaja, J. Mallat, A. Tamminen, E. Noponen, J. Lemanczyk, and A.V. Räisänen, "Antenna tests at 650 GHz in a CATR based on a hologram," *MINT-MIS 2007 / TSMMW 2007 / Millilab Workshop Digest*, Seoul, Korea, Feb. 26–27, 2007, pp. 219–222.
- 2006 33. V. Viikari, J. Mallat, J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, E. Noponen, M. Vaaja, and A. V. Räisänen, "New pattern correction techniques for submm-wave CATRs", *Proc. of the European Conference on Antennas and Propagation (EuCAP06)*, Nice, France, 6-10 November, 2006, CD-ROM SP-626, paper 368102.
34. J. Ala-Laurinaho, T. Koskinen, J. Häkli, A. Karttunen, A. Lönnqvist, E. Noponen, J. Mallat, M. Vaaja, V. Viikari, A. V. Räisänen, J. Heinonen, P. Hautala, and J. Lemanczyk, "Development of a hologram-Based CATR for testing a very high gain antenna at 650 GHz", *Proc. of the European Conference on Antennas and Propagation (EuCAP06)*, Nice, France, 6-10 November, 2006, CD-ROM SP-626, paper 363590.

35. J. Häkli, T. Koskinen, J. Ala-Laurinaho, A. Karttunen, M. Vaaja, V. Viikari, A. Lönnqvist, J. Heinonen, J. Mallat, E. Noponen, P. Hautala, J. Lemanczyk, and A. V. Räisänen, "Development of a 650 GHz hologram based CATR for testing a 1.5 m reflector antenna", *Proc. of Antenna Measurement Techniques Association (AMTA) Europe Symposium 2006*, Munich, Germany, 1–4 May 2006, pp. 83–88.
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37. J. Ala-Laurinaho, J. Häkli, A. Karttunen, T. Koskinen, A. Lönnqvist, J. Mallat, E. Noponen, M. Vaaja, V. Viikari, A. V. Räisänen, and J. Lemanczyk, "Hologram-based CATR measurement of a 1.5 m antenna at 650 GHz: Progress report", *Proc. of the 4th ESA Workshop on Millimetre-Wave Technology and Applications*, Espoo, Finland, 15–17 February 2006, pp. 437–442.
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42. A. Lönnqvist, J. Mallat, E. Noponen, J. Ala-Laurinaho, J. Säily, T. Koskinen, J. Häkli, and A. V. Räisänen, "A phase hologram compact RCS-range for scale model measurements", *3rd ESA Workshop on Millimetre Wave Technology and Applications*, Helsinki University of Technology, Espoo, Finland, May 21–23, 2003, pp. 511–516.
- 2002 43. J. Mallat, J. Ala-Laurinaho, E. Noponen, V. Viikari, A. Lönnqvist, T. Koskinen, J. Säily, J. Häkli, J. Meltaus, and A. V. Räisänen, "A phase hologram RCS range for scale model measurements", *Digest of Technical Papers, URSI/IEEE XXVII Convention on Radio Science*, Espoo, Finland, October 18–20, 2002, (Report S 257, Helsinki University of Technology Radio Laboratory Publications), pp. 143–145.
44. A. V. Räisänen, J. Meltaus, J. Salo, T. Koskinen, A. Lönnqvist, J. Häkli, J. Säily, J. Ala-Laurinaho, J. Mallat, E. Noponen, and M. M. Salomaa, "Computer-generated holograms for mm- and submm-wave beam shaping" (invited paper), *Digest of the 27th IEEE International Conference on Infrared and Millimeter Waves (IRMMW 2002)*, San Diego, California, USA, September 22–26, 2002, pp. 113–114.
45. J. Meltaus, J. Salo, E. Noponen, M. M. Salomaa, A. Lönnqvist, T. Koskinen, J. Säily, J. Häkli, J. Ala-Laurinaho, J. Mallat, and A. V. Räisänen, "Radio-wave Beam Shaping Using Holograms", *2002 IEEE MTT-S International Microwave Symposium*, Seattle, Washington, June 3–7, 2002, pp. 1305–1308.
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47. A. V. Räisänen, J. Ala-Laurinaho, J. Säily, J. Häkli, T. Koskinen, A. Lönnqvist, E. Noponen, J. Salo, J. Meltaus, J. Westerholm, and M. M. Salomaa, "Experimental studies on radio holograms at mm- and submm-wavelengths" (invited paper), *Proc. of the 4th International Kharkov Symposium: "Physics and Engineering of Millimeter and Submillimeter Waves"*, Kharkov, Ukraine, June 4–9, 2001, pp. 57–62.
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- 1995 60. J. Saarinen, E. Noponen, J. Turunen, T. Suhara, and H. Nishihara, "Input/output coupling by binary gratings in planar integrated optics", *OSA Annual Meeting – Program*, 1995 (Optical Society of America, Washington, DC, 1995), pp. 149–150. (abstract)
61. E. Noponen and J. Turunen, "Optimization of diffractive lens profiles for finite-conjugate imaging", *Workshop on Diffractive Optics*, August 21–23, 1995, Prague, Czech Republic, Technical Digest, p. 32. (abstract)
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76. E. Nojonen, V. Viikari, A. Lönnqvist, J. Säily, J. Häkli, T. Koskinen, J. Ala-Laurinaho, J. Mallat, A. V. Räisänen, J. Salo, J. Meltaus, and M. M. Salomaa, "Phase hologram for plane wave generation at 310 GHz", *Proceedings of the XXXVII Annual Conference of the Finnish Physical Society*, March 20–22, 2003, Helsinki, paper 13.20, page 377.
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78. E. Nojonen, J. Salo, J. Meltaus, M. M. Salomaa, A. Lönnqvist, J. Säily, J. Häkli, T. Koskinen, V. Viikari, J. Ala-Laurinaho, J. Mallat, and A. Räisänen, "Propagation optimization of diffractive elements for shaping millimeter-wave radio fields", *Proceedings of the XXXVI Annual Conference of the Finnish Physical Society*, March 14–16, 2002, Joensuu, paper 2.13, page 70.
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