



Universität
Basel

Publication

A diamond-confined open microcavity featuring a high quality-factor and a small mode-volume

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4657321

Author(s) Flågan, Sigurd; Riedel, Daniel; Javadi, Alisa; Jakubczyk, Tomasz; Maletinsky, Patrick; Warburton, Richard J.

Author(s) at UniBasel [Warburton, Richard](#) ;

Year 2022

Title A diamond-confined open microcavity featuring a high quality-factor and a small mode-volume

Journal Journal of Applied Physics

Volume 131

Number 11

Pages / Article-Number 113102

With a highly coherent, optically addressable electron spin, the nitrogen-vacancy (NV) center in diamond is a promising candidate for a node in a quantum network. A resonant microcavity can boost the flux of coherent photons emerging from single NV centers. Here, we present an open Fabry–Pérot microcavity geometry containing a single-crystal diamond membrane, which operates in a regime where the vacuum electric field is strongly confined to the diamond membrane. There is a field anti-node at the diamond–air interface. Despite the presence of surface losses, a finesse of $1=11500$ was observed. The quality (

Publisher American Institute of Physics

ISSN/ISBN 0021-8979 ; 1089-7550

edoc-URL <https://edoc.unibas.ch/92133/>

Full Text on edoc Available;

Digital Object Identifier DOI 10.1063/5.0081577

ISI-Number 000779173700001

Document type (ISI) Article