1 **Supplementary Information**

2 # Hexagonal boron nitride nanophotonics: a record-
3 breaking material for ultraviolet and visible spectral
4 ranges

5 *Grudinin D.V.,[a,b†] Ermolaev G.A.,[a,b†] Baranov D.G.,[b,c] Toksumakov A.N.,[b,c] Voronin K.V.,[b,c] Slavich A.S.,[b,c]*

6 *Vyshnevyy A.A.,[a,b] Mazitov A.B.,[d] Kruglov I.A.,[a,b] Ghazaryan D.A.,[b,c,e] Arsenin A.V.,[a,b,e] Novoselov K.S.,[f,g,h] and*

7 *Volkov V.S.[a*]*

8 *[a]Emerging Technologies Research Center, XPANCEO, Dubai Investment Park 1, Dubai, United Arab*
9 *Emirates*

10 *[b]Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny*
11 *141700, Russia*

12 *[c]Moscow Center for Advanced Studies, Kulakova str. 20, Moscow, 123592, Russia*

13 *[d]Institute of Materials, École Polytechnique Fédérale de Lausanne, Lausanne, 1015, Switzerland*

14 *[e]Laboratory of Advanced Functional Materials, Yerevan State University, Yerevan, 0025, Armenia*

15 *[f]National Graphene Institute (NGI), University of Manchester, Manchester, M13 9PL, UK*

16 *[g]Department of Materials Science and Engineering, National University of Singapore, Singapore,*
17 *03-09 EA, Singapore*

18 *[h]Chongqing 2D Materials Institute, 400714, Chongqing, China*

19 *† These authors contributed equally.*

20 ** Corresponding author.*

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22 **Supplementary Note 1: Ellipsometric spectra of hBN flake**

23 Supplementary Figure 1 shows experimental ellipsometric parameters for hBN flake investigated in

24 the main text.
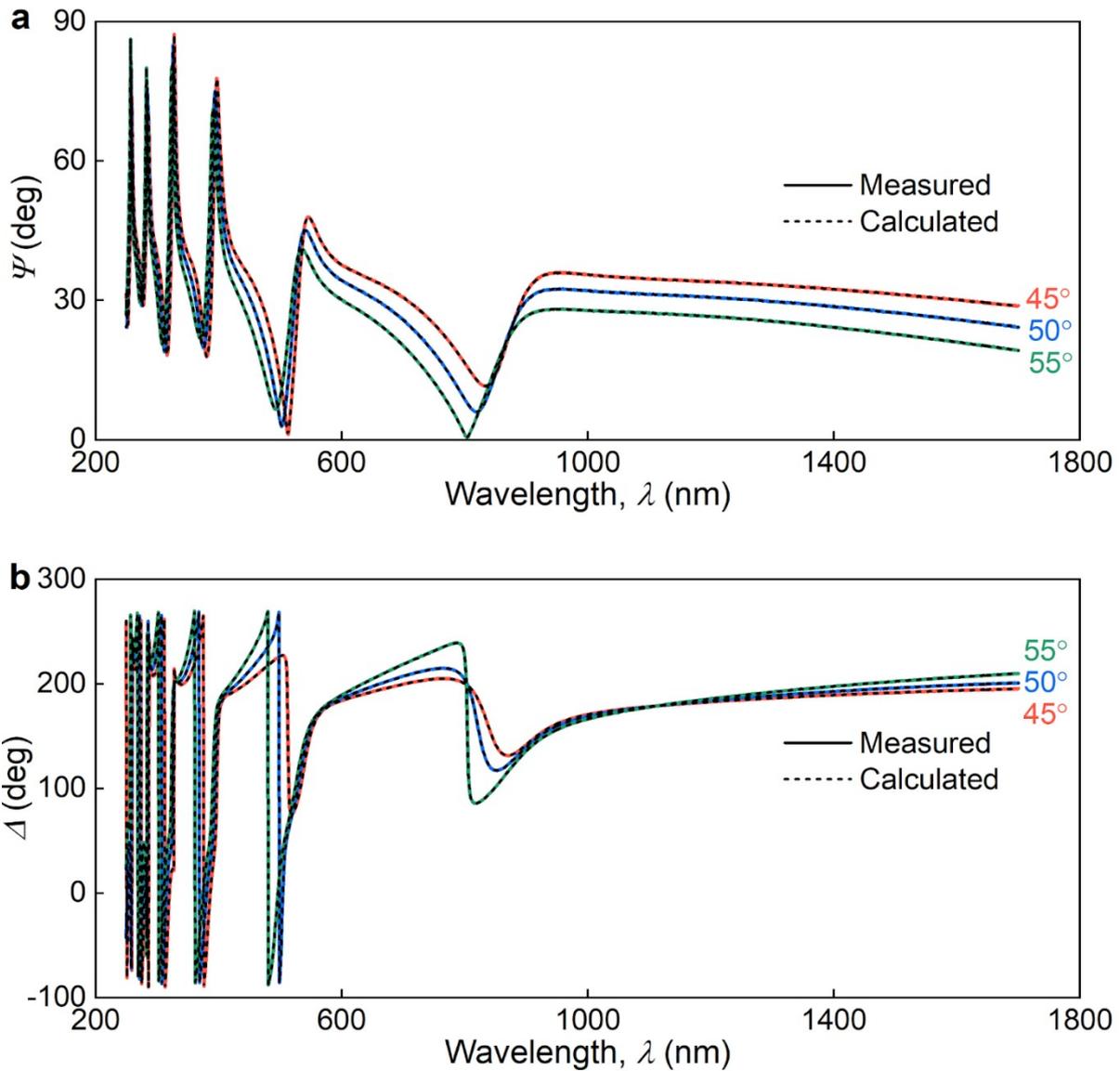
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26 **Supplementary Figure 1.** Ellipsometry spectra of hBN. **a** Ψ and **b** Δ at three incident angles.

27 **Supplementary Note 2: Near-field imaging of a planar waveguide mode within hBN flake**

28 To analyze the modes of a planar waveguide in an hBN flake, we used scattering scanning near-field

29 optical microscopy. The installation diagram is shown in Figure 2. Scanning was carried out near the

30 edge of the sample; in this case, the amplitude and phase oscillations observed in the experiment are

31 a consequence of the interference of the signal of the mode excited at the probe and scattered at the

32 edge of the sample as seen in Figure 3. During measurements we aligned the sample to have kxy

33 perpendicular to the edge of the sample. The measurement results are shown in Figure 4a. To analyze

34 the effective mode index, we performed a complex Fourier transform of each row of the complex

35 amplitude-phase, and then averaged the obtained spectra, thereby obtaining the spectra in Figure 4c.

36 Two peaks in the Fourier spectra correspond to the background illumination and the edge-scattered

37 mode. The absence of peaks on the negative side indicates that there was no scattering at the edge on

38 the left side of the probe. The position of the peak after taking into account the shift associated with

39 the geometry of the setup and the sample (formula 1 main text) corresponds to the effective mode

40 index.
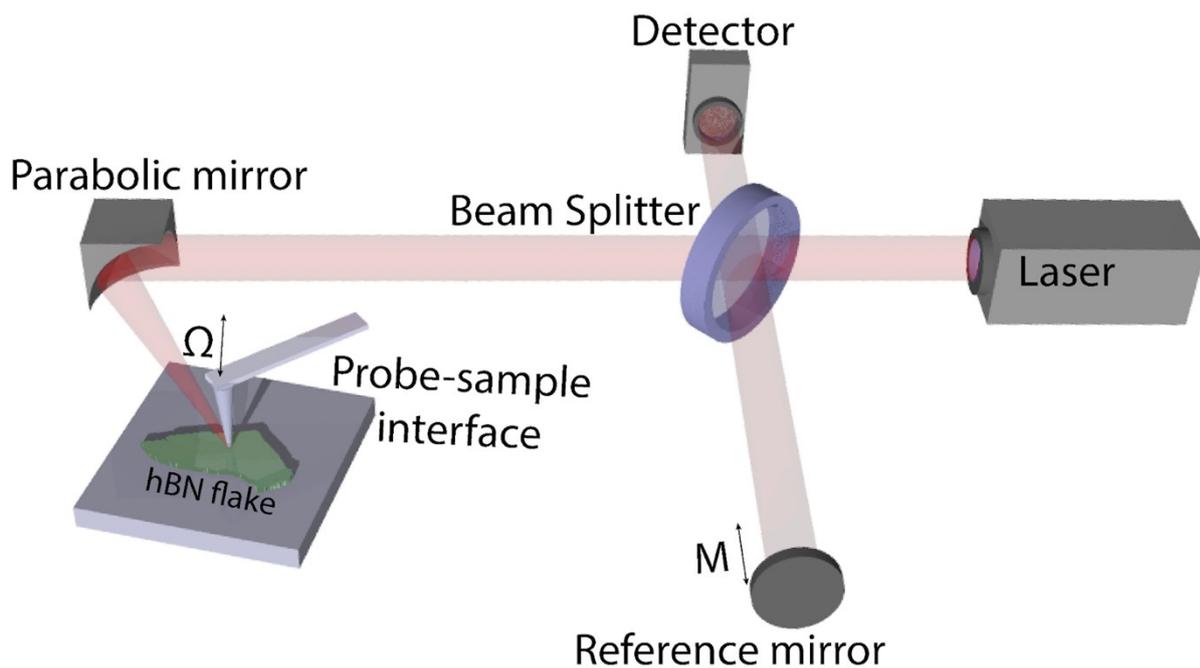
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42 **Supplementary Figure 2.** Experimental scheme of the near field microscope. The same mirror is

43 used for focusing light on the edge of the tip and to collect near field signals.
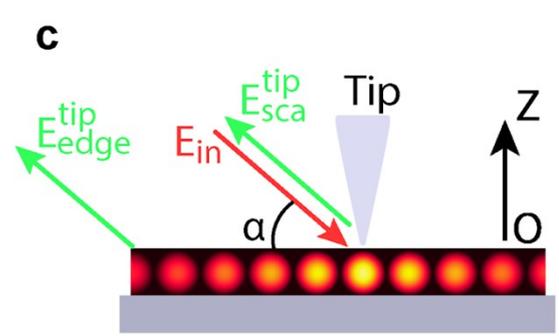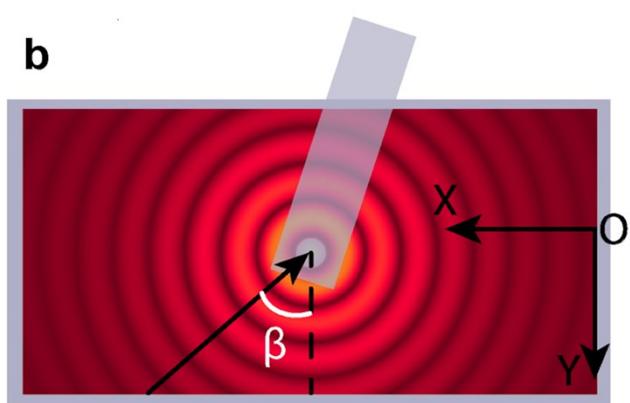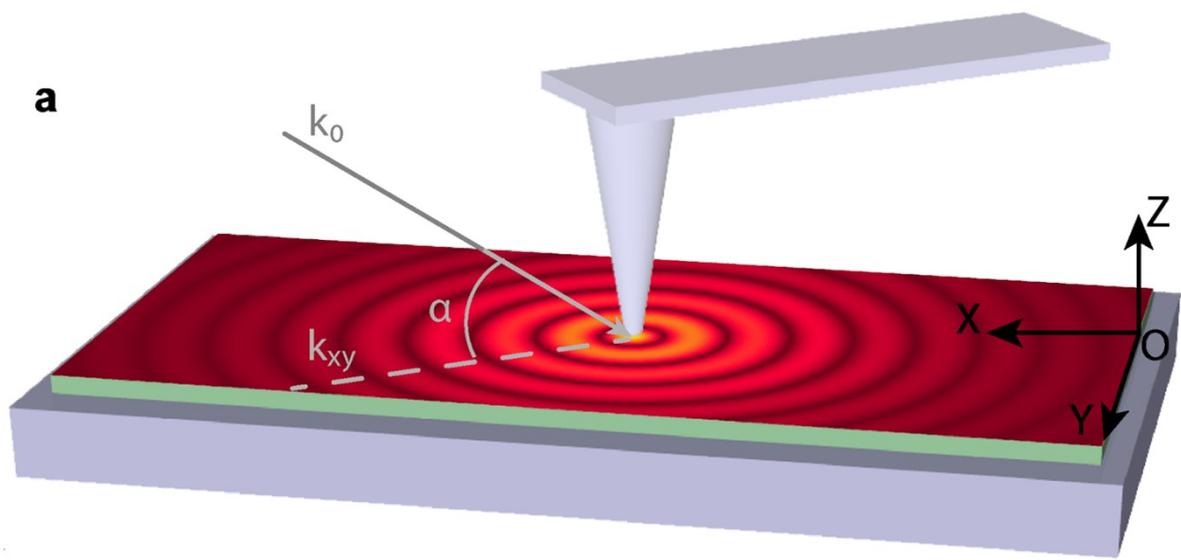
Supplementary Figure 3. Schematic of the near-field imaging principle. Phase difference between E_{sca} and E_{edge} gives the shift in observable frequency of oscillations.
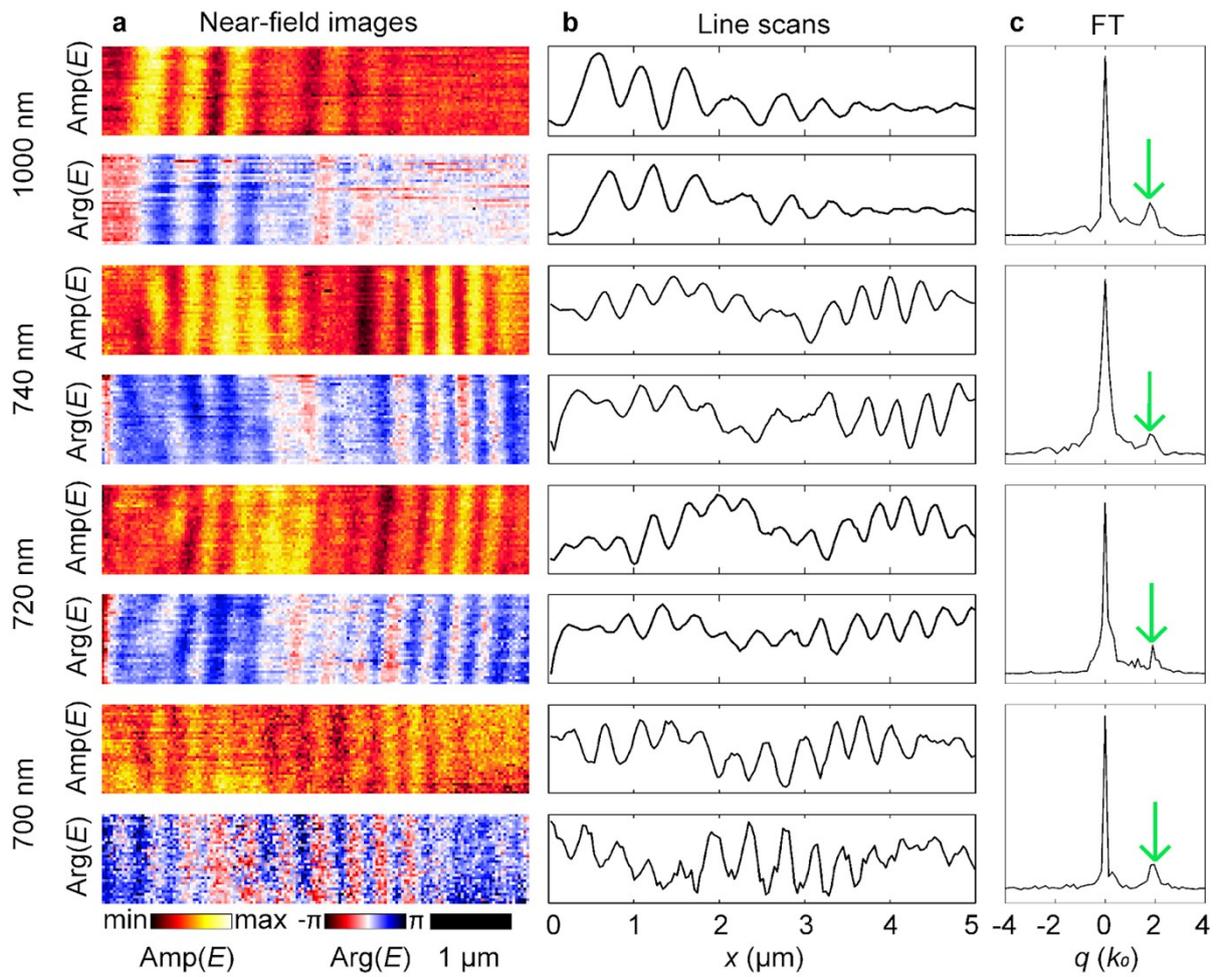
Supplementary Figure 4. a. Near-field measurements of hBN. Near-field images, real part Re(E) and phase Arg(E). **b** *x*-line scans taken from panel a and averaged over 1.1 μm along the *y*-axis. **c** Fourier transform (FT) amplitude of the complex near field signal in **b**. Green arrows mark the peak associated with the waveguide mode.