Supplementary Material to the article "Influence of spin current in antiferromagnet IrMn on the exchange displacement and spectra of spin waves in NiFe/IrMn structures"

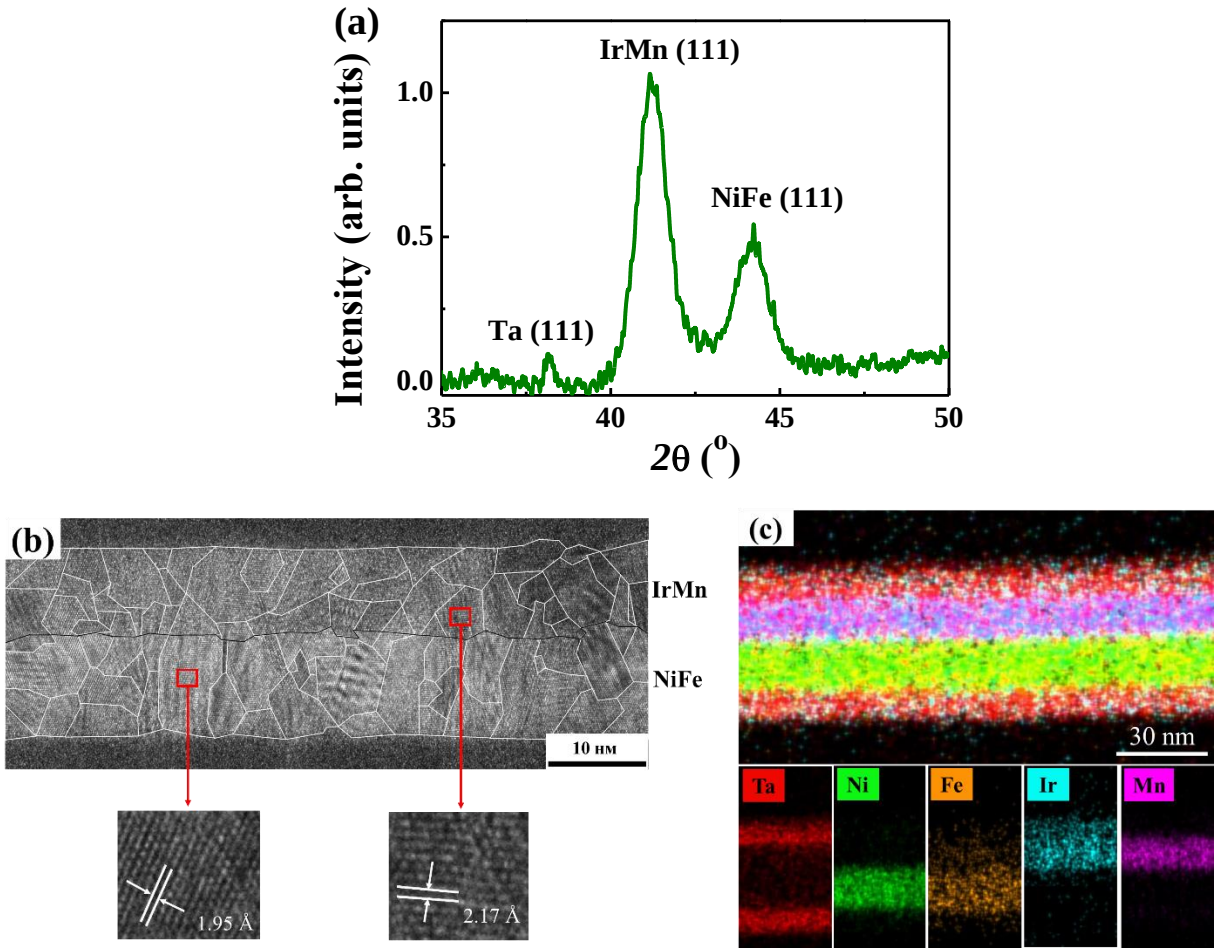

Fig. S1. (a) X-ray diffraction spectrum of the sample. (b) TEM image of a cross-section of the NiFe/IrMn structure. The insets show high-resolution TEM images of NiFe and IrMn layers in these samples and TEM images of NiFe and IrMn layers with resolved atomic planes. (c) EDX image of the same sample cross-section in NiFe/IrMn. Insets show individual layers.

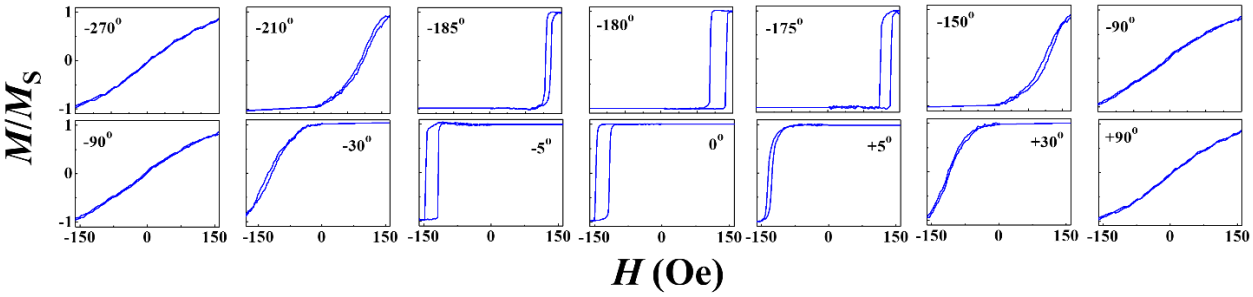

Fig. S2. Hysteresis loops at different angles between vectors **H** and **H**$_{EX}$.

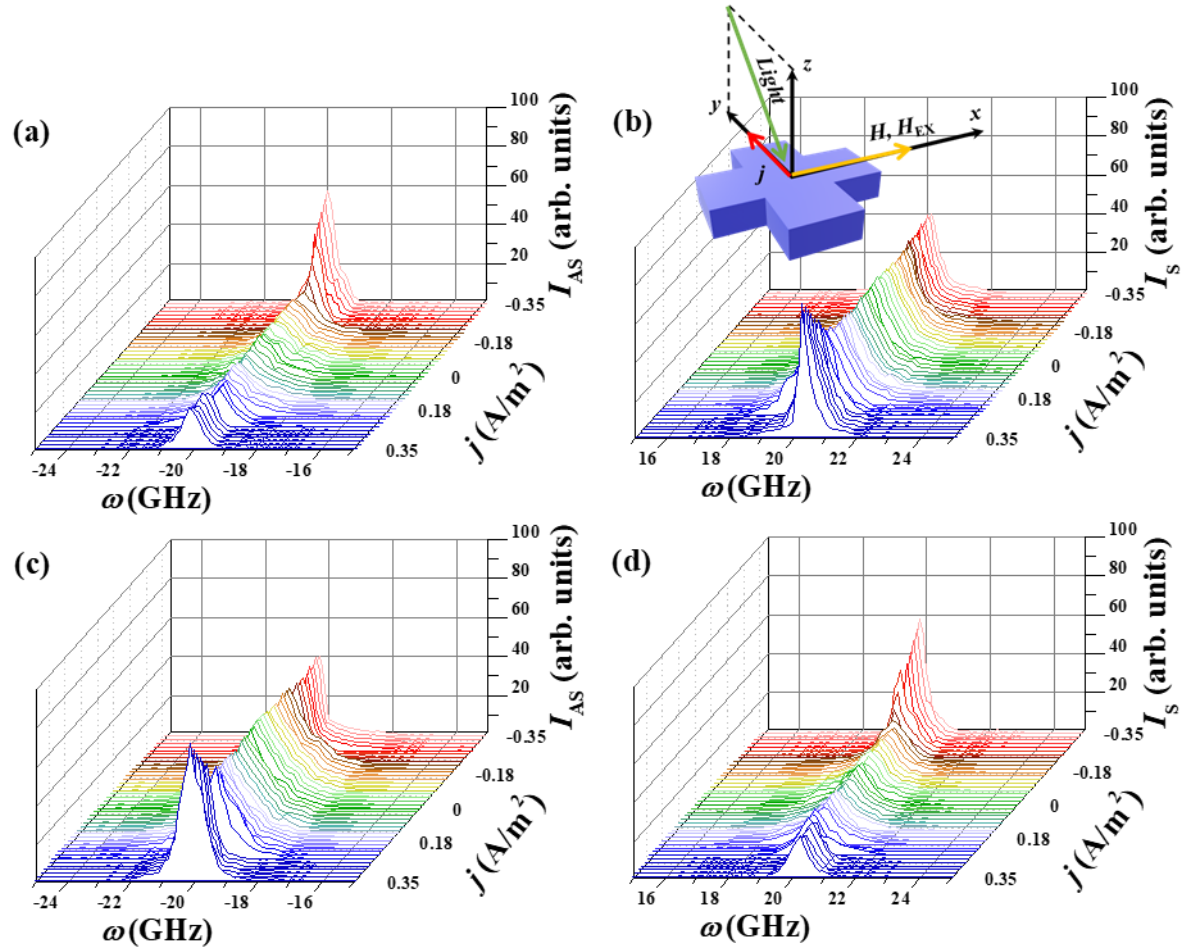

Fig. S3. Series of BLS spectra of the anti-Stokes component (a, c) and Stokes component (b, d), recorded according to the diagram in the inset in external fields H = +3 kOe (a, b), H = -3 kOe (c, d).

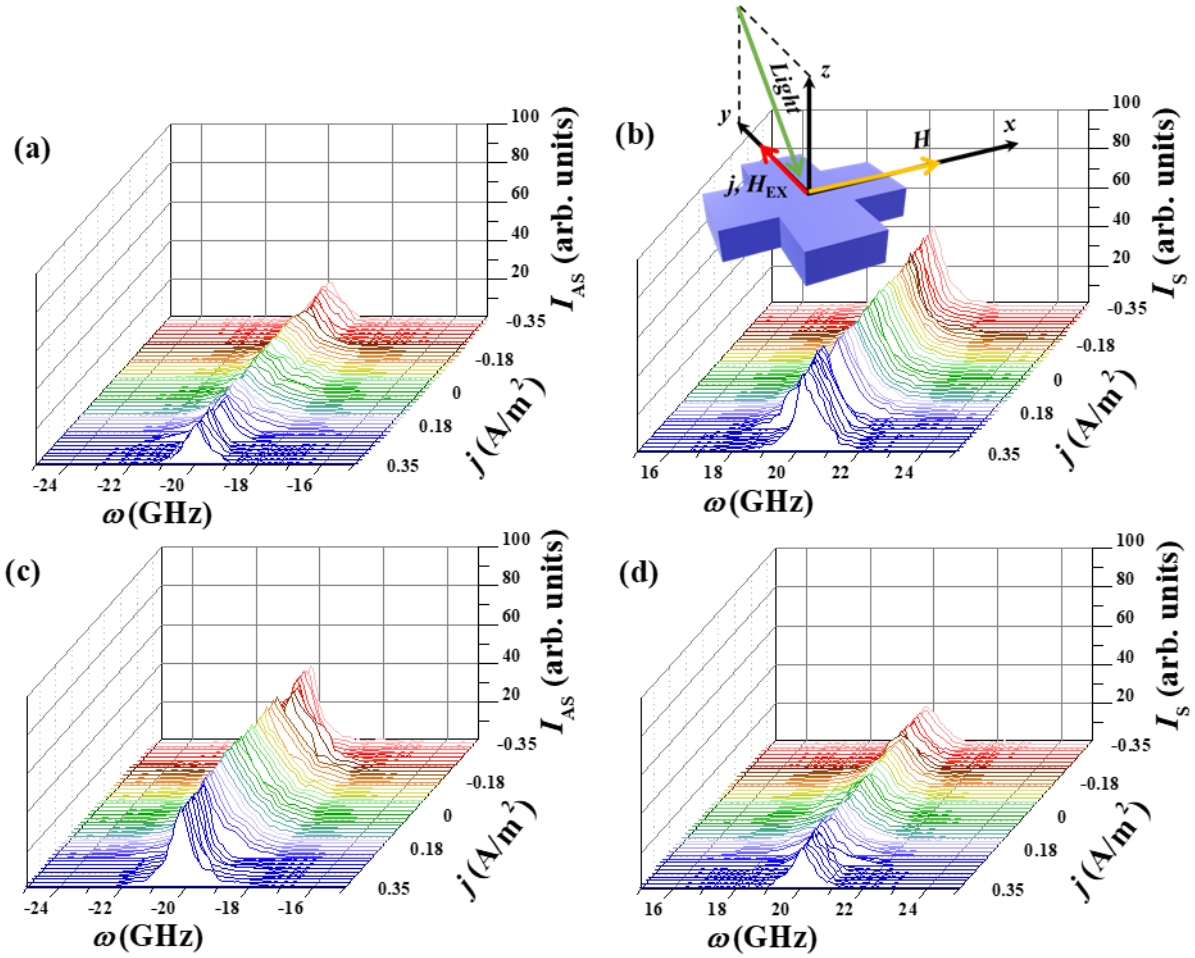

Fig. S4. Series of BLS spectra of the anti-Stokes component (a, c) and Stokes component (b, d), recorded according to the diagram in the inset in external fields H = +3 kOe (a, b), H = -3 kOe (c, d).

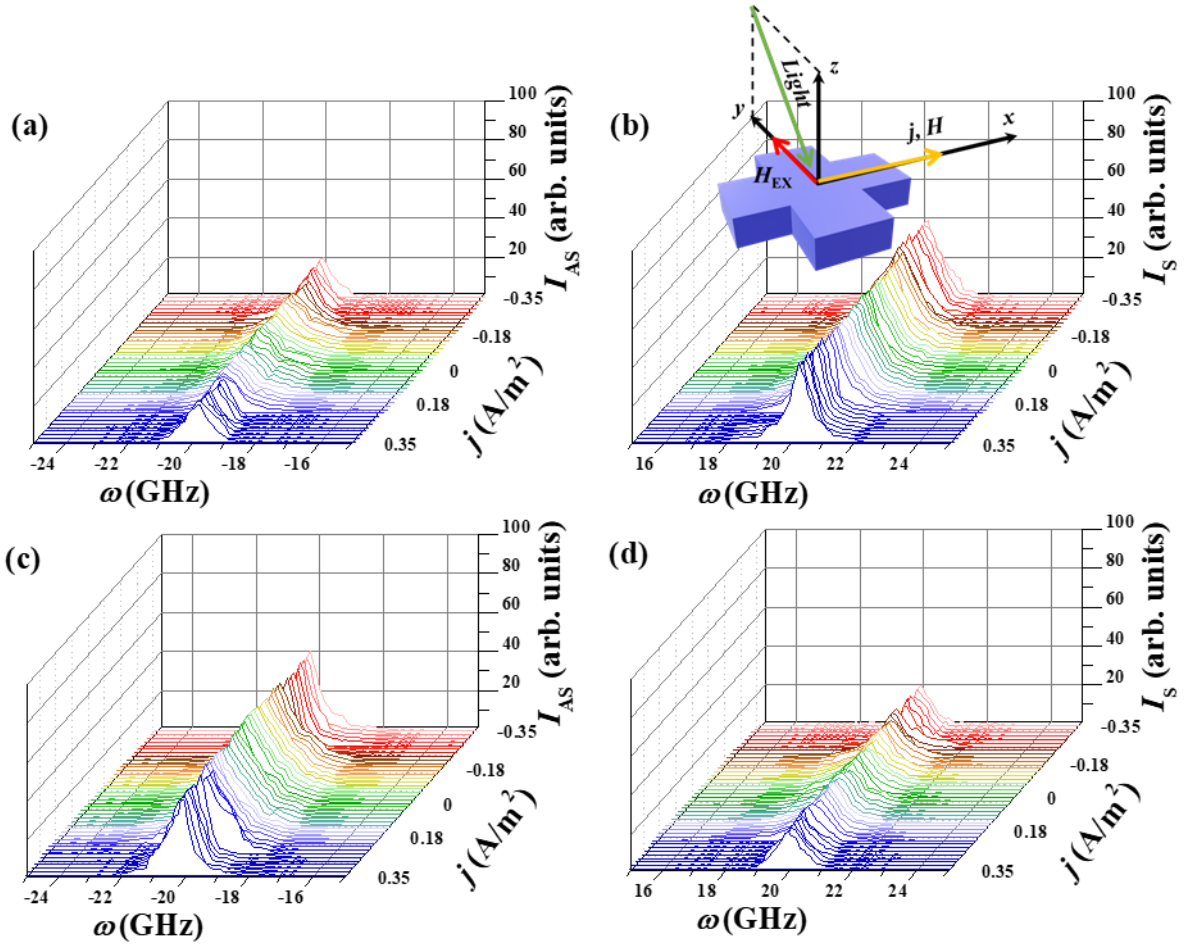

Fig. S5. Series of BLS spectra of the anti-Stokes component (a, c) and Stokes component (b, d), recorded according to the diagram in the inset in external fields H = +3 kOe (a, b), H = -3 kOe (c, d).

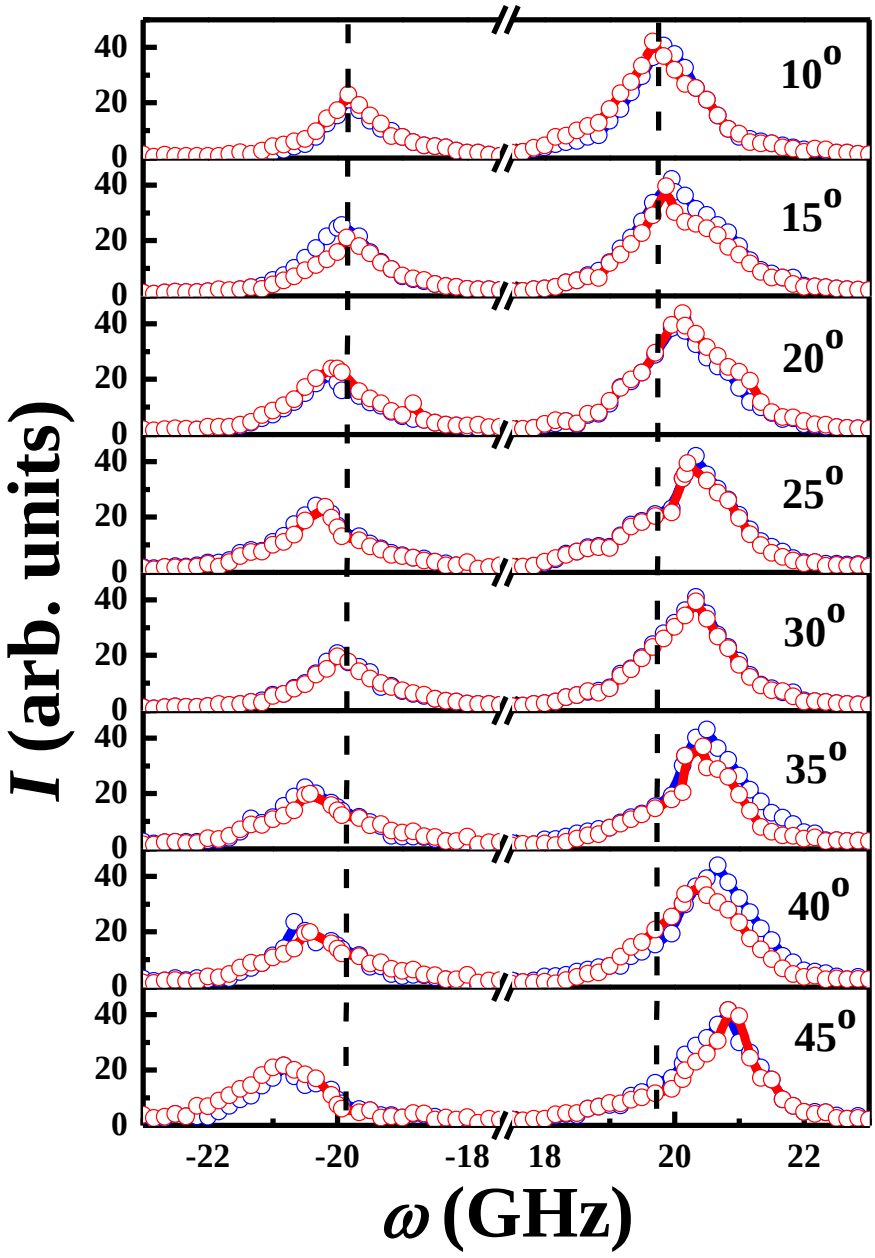

Fig. S6. A series of BLS spectra of continuous (blue line) and patterned (red line) NiFe/IrMn samples in an external field H = +3 kOe and wave vectors corresponding to different angles of incidence of the beam on the sample: k = 40976 cm^{-1} (θ = 10°), 61074 cm^{-1} (θ = 15°), 80708 cm^{-1} (θ = 20°), 99728 cm^{-1} (θ = 25°), 117990 cm^{-1} (θ = 30°), 135355 cm^{-1} (θ = 35°), 151691 cm^{-1} (θ = 40°) and 166874 cm^{-1} (θ = 45°).

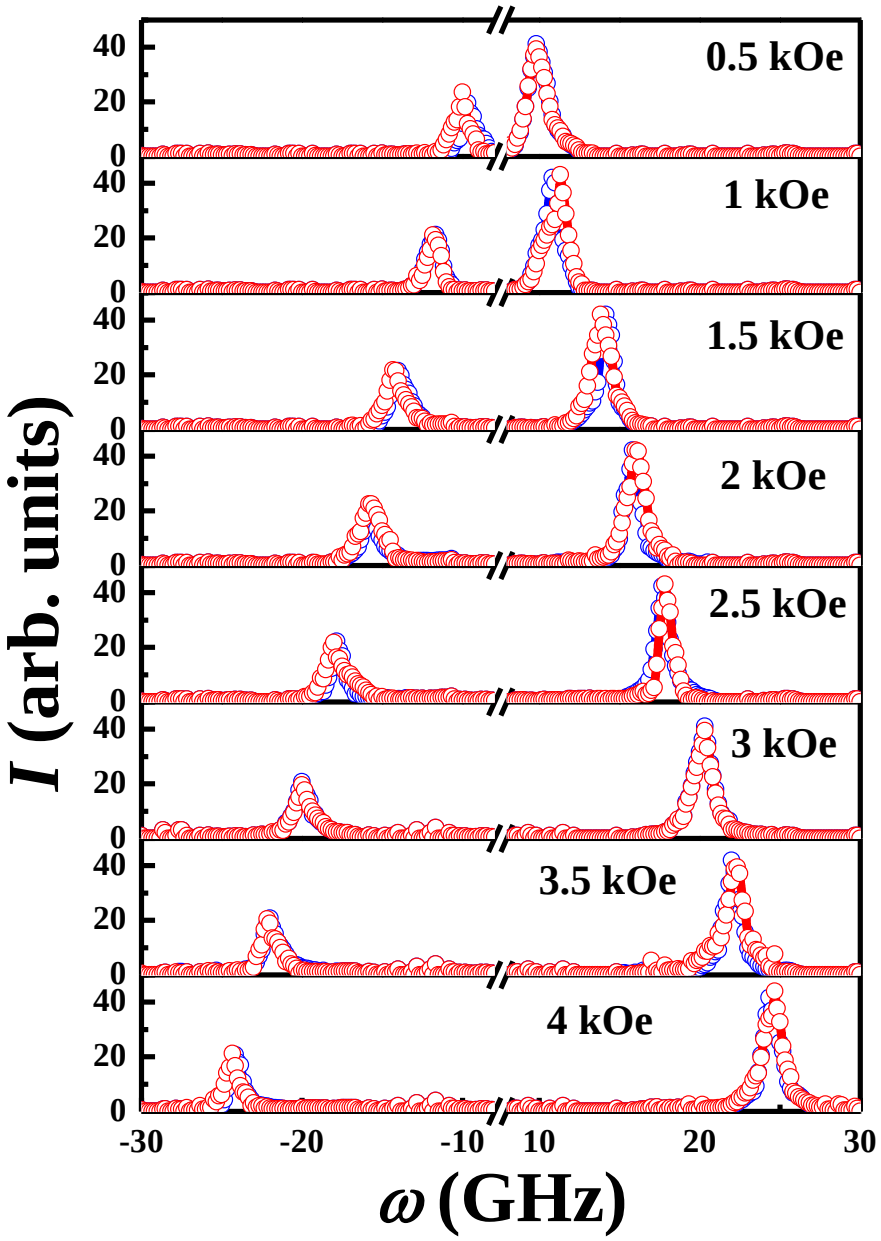

Fig. S7. A series of BLS spectra of continuous (blue lines) and patterned (red lines) NiFe/IrMn samples in the field range from +0.5 to +4 kOe.