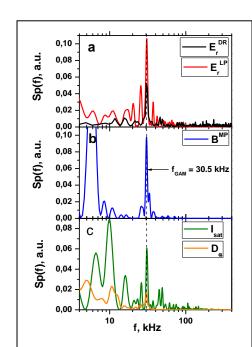
## EX/P1-32 Geodesic acoustic mode investigation in the spherical Globus-M tokamak using a multi-diagnostic approach



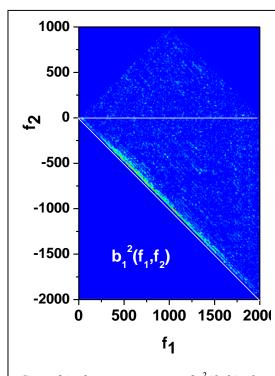
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Physico-

Normalized auto-power spectra of radial electric field extracted by Doppler reflectometry  $E_r^{DR}$  and Langmuir probes  $E_r^{LP}$  (a), GAM magnetic component spectrum  $B^{MP}$  (b),  $D_{\alpha}$  emission signal and probe ion saturation current (c).

- 1. Multi-diagnostic approach for GAM study in spherical torus. Doppler microwave backscattering diagnostic, Langmuir probes,  $D_{\alpha}$  emission detectors and Mirnov coil arrays.
- 2. GAM manifestation in power spectra of all diagnostics signals.
- 3. Spatial GAM ExB velocity structure with mode number m=0 and spatial plasma density structure with mode number n=0.
- 4. The discovered GAM oscillations of Mirnov coil signals are drastically decreased at low field side. Sideband magnetic field perturbations  $\delta B \sim \cos(m\theta)$  with mode number m=2.
- 5. The evolution of three-wave coupling between plasma turbulence and global GAM oscillations during L-H transition performed through bicoherence analysis in spherical torus.



Cross-bicoherence spectrum  $b_1^2(f_1,f_2)$  of backscattering signal and  $E \times B$  velocity oscillations