

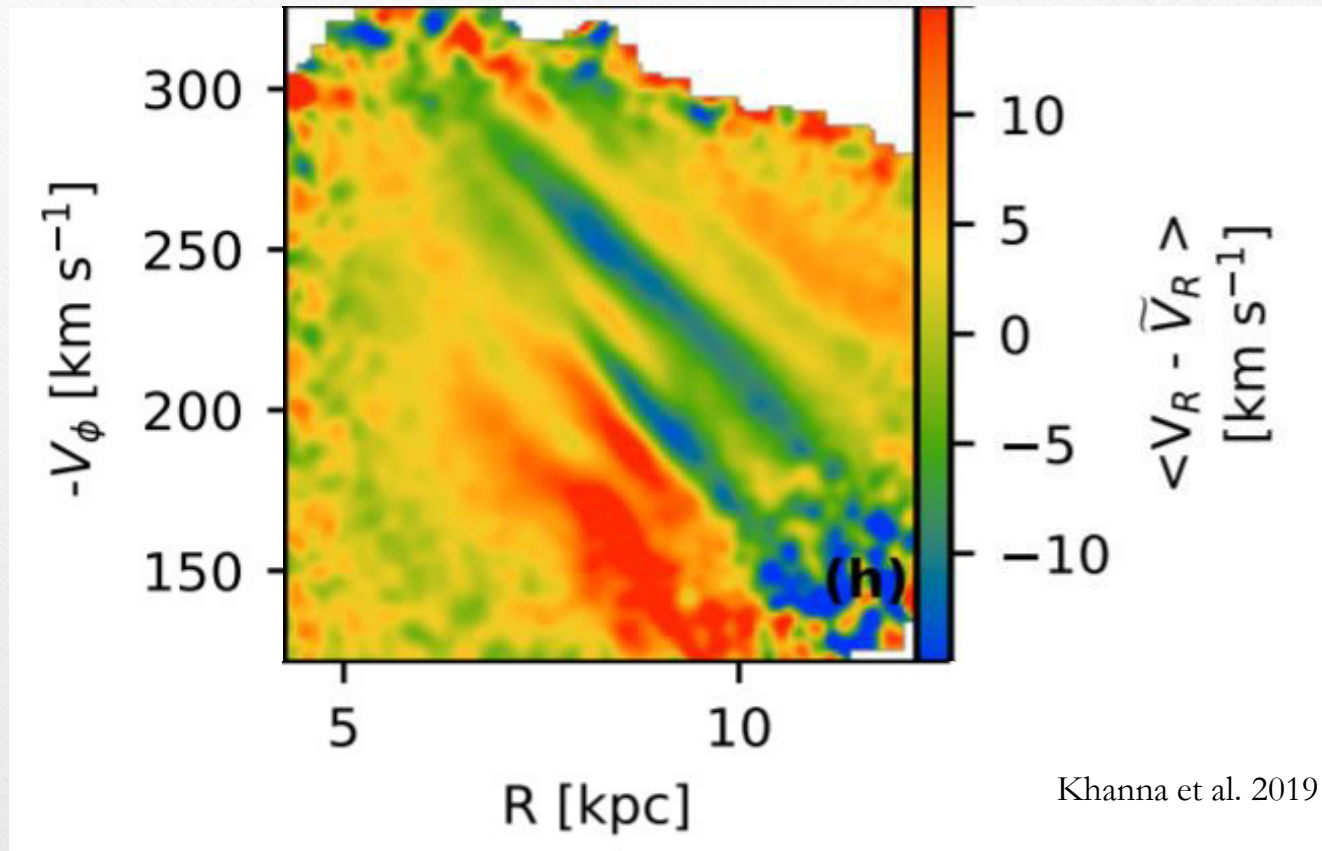
A wavepattern in Gaia DR2 phasespace

Jennifer Friske & Ralph Schönrich

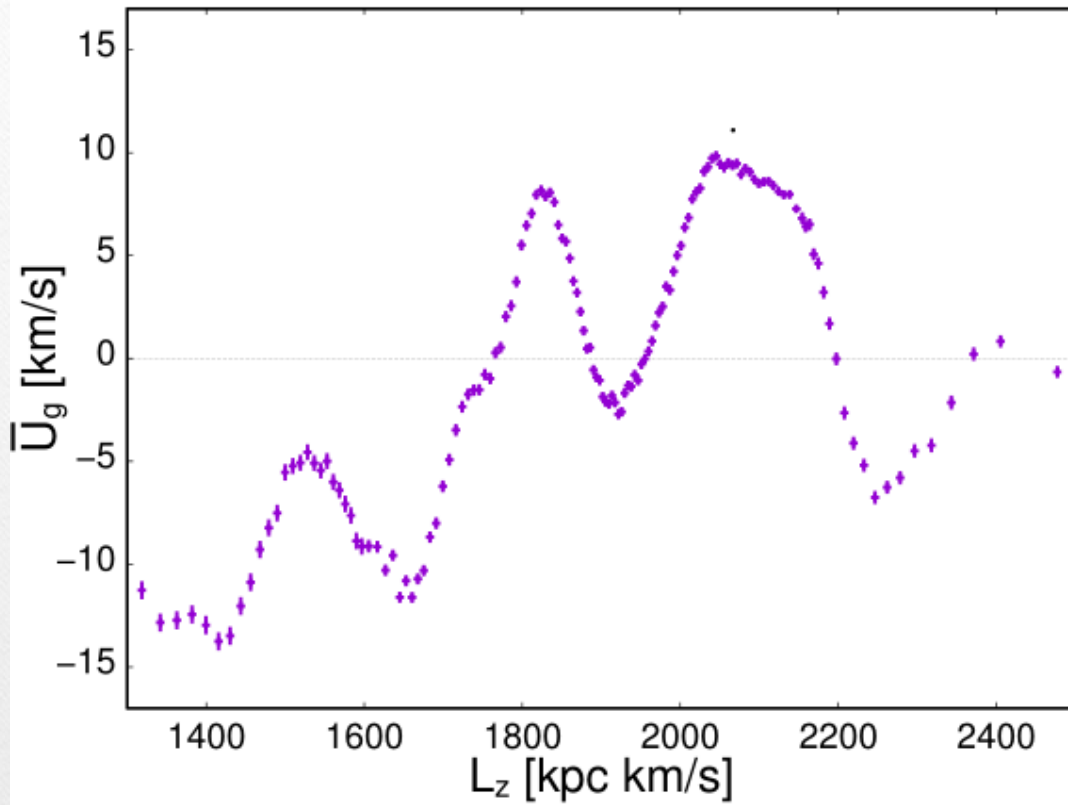
Ljubljana, 13. - 16. Juni 2019



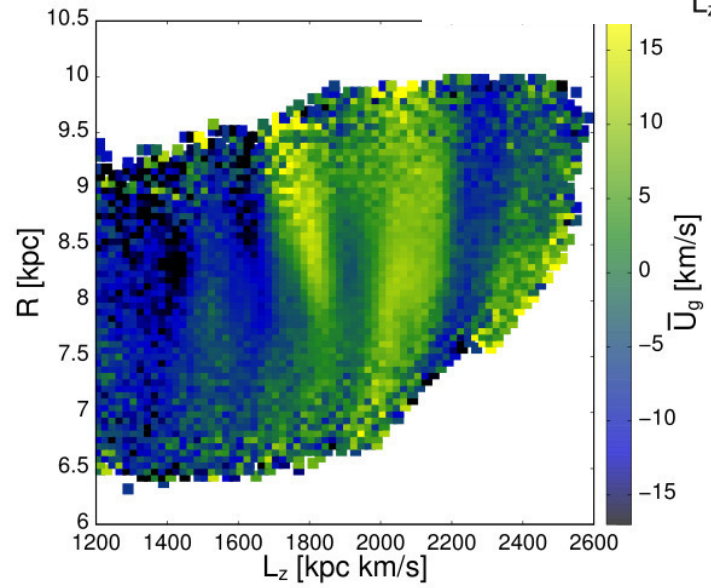
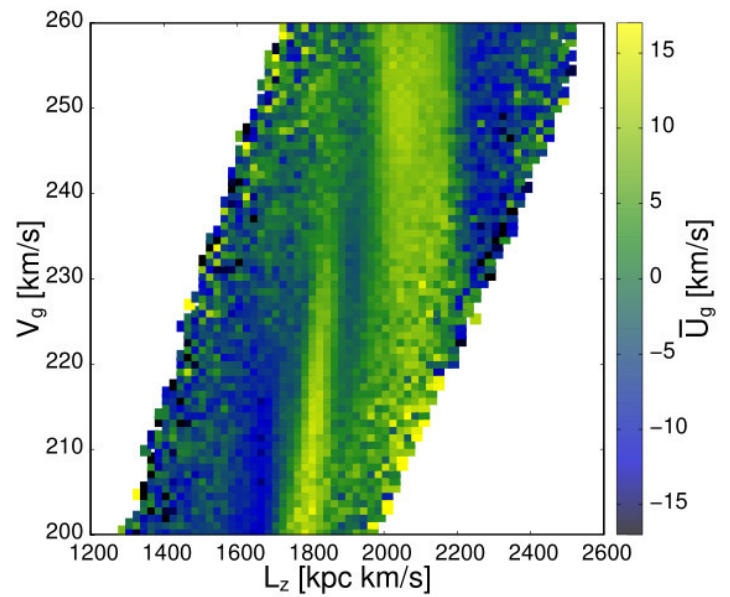
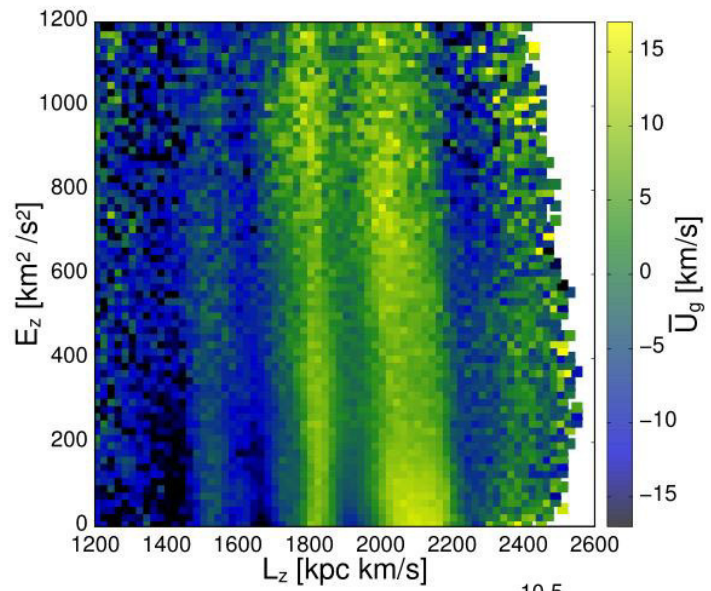
Surprise: Gaia phasespace is not smooth!

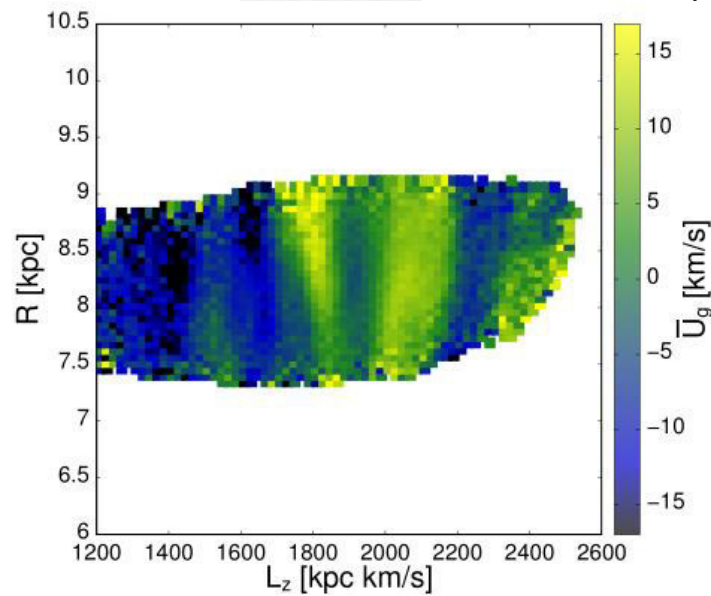
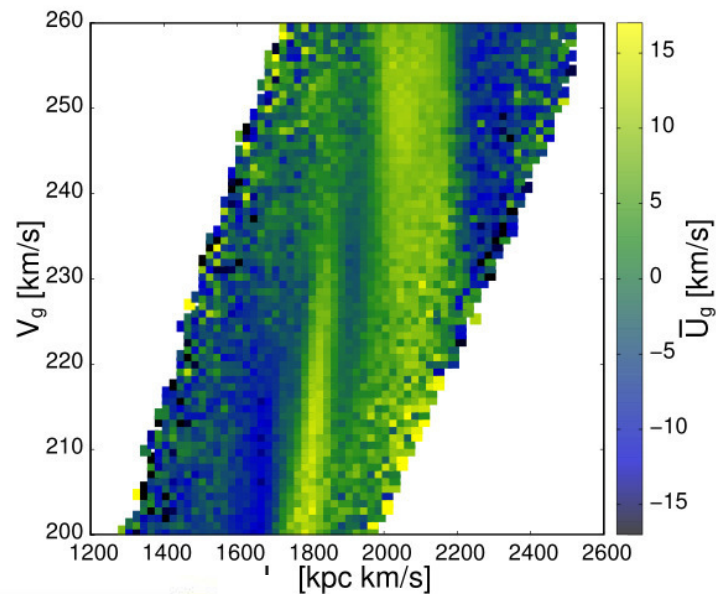
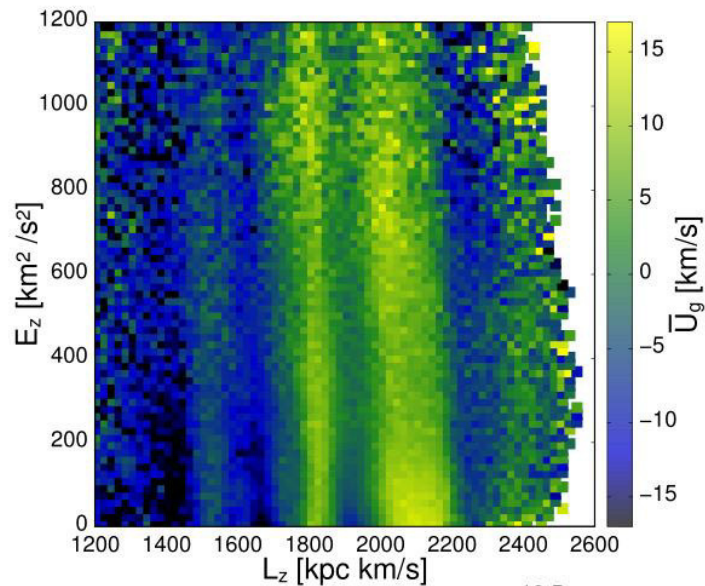


See also Fragkoudi et al 2019
And Laporte et al 2019

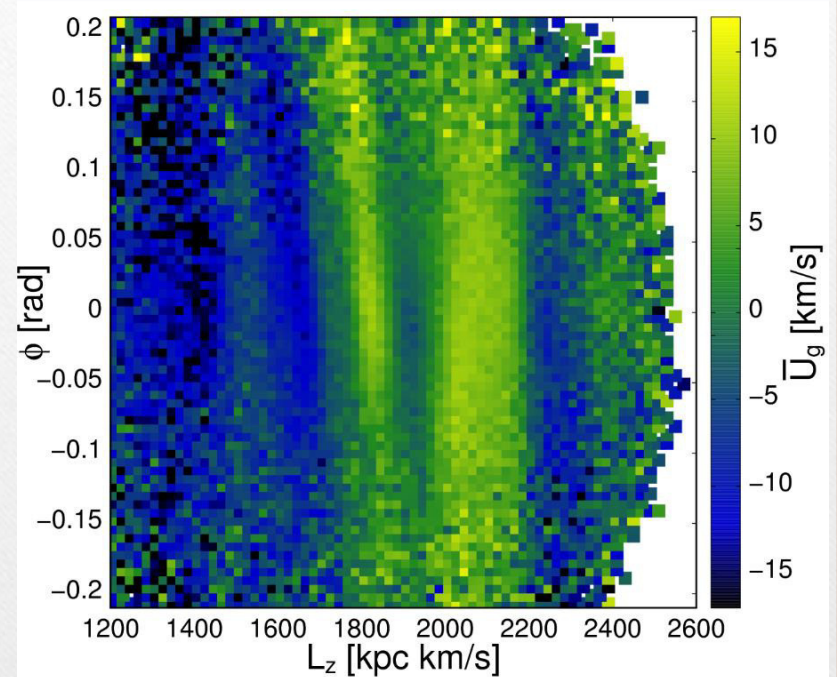


Very distinct wave pattern with an amplitude of ~ 12 km/s in the whole Gaia subsample





Clearly detectable phaseshift.



$$\bar{U}_g(L_z) = \sum_{i=1}^2 A_i \sin \left((L_z + \delta_{L_z,i}) \cdot \frac{2\pi}{\lambda_i} \right) + t$$

$$A_{fast} = 7.0 \text{ km s}^{-1}$$

$$A_{slow} = 8.0 \text{ km s}^{-1}$$

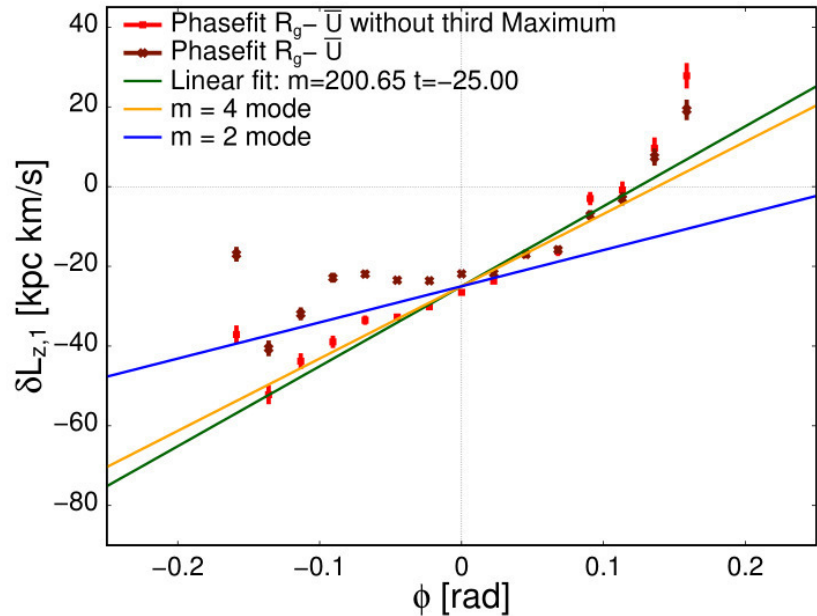
$$\lambda_{fast} = 285 \text{ kpc km s}^{-1}$$

$$\lambda_{slow} = 1305 \text{ kpc km s}^{-1}$$

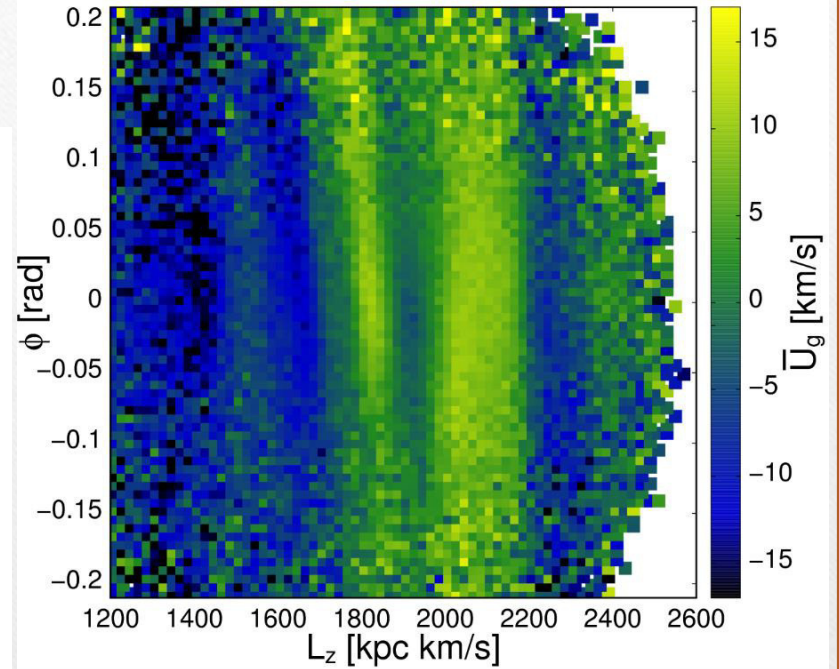
$$t = -2.877$$

$$\delta_{L_z,slow} = 1010 \text{ kpc km s}^{-1}$$

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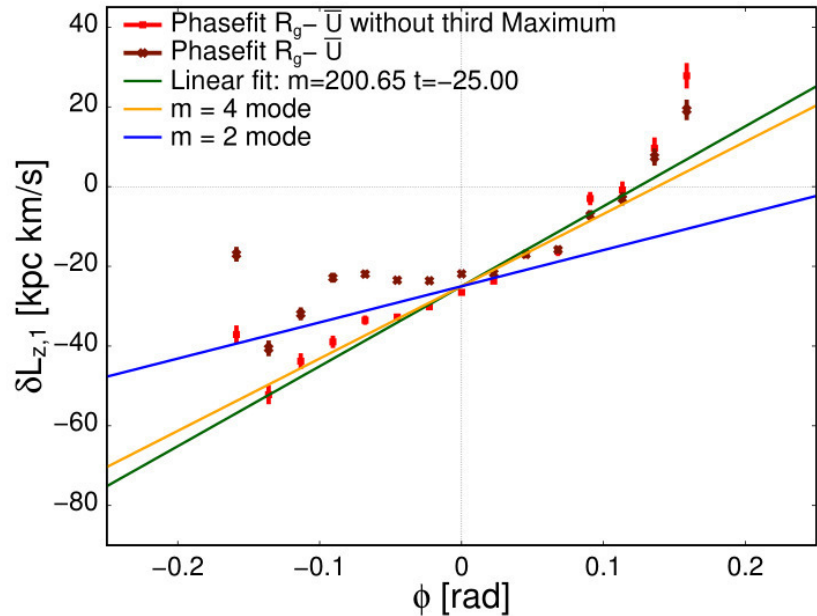
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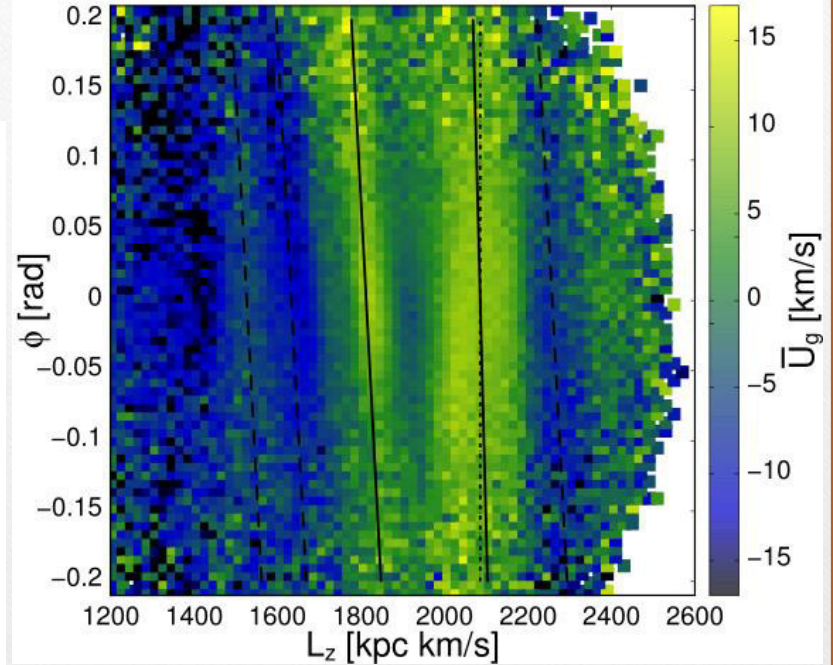
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Strong alignment with maxima of vertical velocity.

