***Spin Whirls – Notes on the scaling of the Figures***

The figures have been scaled by choosing 1 pixel (along horizontal direction) equal to the Δx values and 1 pixel (along vertical direction) equal to the Δy reported below.

**Fig.1 (a-c) - Experiment**

Δx = 0.325381306218224 μm

Start = - 470 μm (to put the zero at the centre of the Fig)

Δy = 1.97111913357401 μm

Start = - 283 μm (to put the zero at the centre of the Fig)

**Fig.1 (d-f) and Fig.2(a-c) - Simulations**

Δx = 0.509554140127389 μm

Start = - 320 μm (to put the zero at the centre of the Fig)

Δy = 0.509554140127389 μm

Start = - 320 μm (to put the zero at the centre of the Fig)

**NB:** All the other simulations data shown in the paper and in the supplementary Information [Fig.S2(a-c), Fig.S7 ] have been scaled with the above values.

**FIG.3 – EXPERIMENT \_ PROFILES**

Δx = 0.328 ps/pixel

**NB:** All the other profiles have been scaled with the same Δx (Fig. S4a, Fig. S4b, Fig. S6d).

**Fig4(a-b) – Experiment – Interpolated**

Δx = 0.406845965770171 μm /pixel

Start = -419 μm

Δy = 1.72239747634069 μm/ pixel

Start = -230 μm

**FigS3(a-c) and Fig.S3f – Experiment**

Δx = 0.065 μm

Start = -16.38 μm

Δy = 0.065 μm

Start = - 16.12 μm

**Fig.S3d**

Δx = 0.065 μm

Start = - 0.844999999999999 μm

Δy = 0.065 μm

Start = -0.845000000000001 μm

**Fig.S3e**

Δx = 0.065 μm

Start = -16.38 μm

Δy = 0.065 μm

Start = -16.185 μm

**FigS6(a-b) – Experiment – Interpolated**

Δx = 0.325381306218224 μm

Start = - 475 μm

Δy = 1.97111913357401 μm

Start = -300 μm

**NOTES on the INTERPOLATION (with IGOR PRO by WaveMetrics)**

**Command used:** ImageInterpolate /DEST=LL5\_interp /F={4,4} Bilinear

**BILINEAR:** Performs a bilinear interpolation subject to the specified flag. You can use either the /F or /S flag, but not both.

How does it interpolate? --> /F flag:

**/F={fx,fy}** Bilinear interpolation of all the source data. Here fx is the sampling factor for the X-direction and fy is the sampling factor in the Y-direction. The output number of points in a dimension is factor\*(number of data intervals) +1. The number of data intervals is one less than the number of points in that dimension.

For example, if srcWave is a 2x2 matrix (you have a single data interval in each direction) and you use /F={2,2}, then the output wave is a 3x3 matrix (i.e., 2x2 intervals) which is a factor of 2 of the input. Sampling factors can be noninteger values.

For example, in the case of Fig. 1:

* Factor is 4 (i.e. F={4,4})
* N of intervals along x is 639
* factor\*(number of data intervals) +1 = 4\*639+1 =2557 (along x)
* factor\*(number of data intervals) +1= 4\*69+1=277 (along y)