Full SS Kernel Analysis for SolutionSpaceKernel

Model Toy network with uncapped kernel of type SimpleCone
calculated on Tue 19 Sep 2023 in 0.313 seconds.

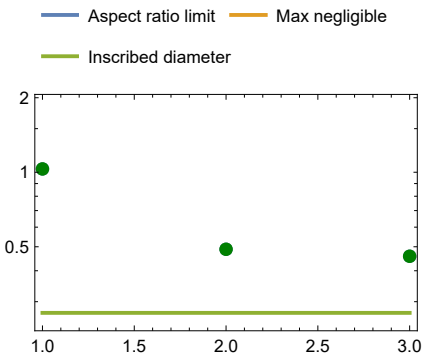
Step time limit	60.	Stop sampling when failure rate >	20
Unbuffered externals exempted	0	Minimal, Maximal LP chord counts	{10, 50}
LP tolerance	0.0001	Maximal flips to find LP chords	25
Fixed value tolerance	0.002	Aspect ratios ≥ this are flattened	50.
Progenitor sample size	20	Diameters > this not flattened	0.002
Max BFBF tree nodes	100 000	Default capping radius	1.
BFBF random greedy sample size	500	Flux bounds ≥ this are taken as artificial	100.
Gready search mixing fraction	0.8		

	Constraints	Variables	Ray Yield
Stoichio, objective and range constraints	26	9	0
Remove artificial bounds, split reversibles	17	9	0
Fix 0 fluxes, revert reversibles	15	9	0
Apply mass balance and fixed objective value	0	3	0
Apply nontrivial range constraints	6	3	0
RSS after removing redundant constraints	3	3	0
RSS a simple cone, capped with default radius	3	3	0
Default capping of 3 progenitor rays	7	3	3

All points in the solution space share the objective value 0.0
All 3 chords were calculated by LP for the SSK.
The maximal inscribed hypersphere diameter is 0.270358
The diameter and volume coverage ratios, between mutually similar simplices
that encloses the periphery points or the complete SSK, are {99.2, 97.6}% respectively.
The mean SSK diameter is estimated to be in the range {0.461784, 0.659141}
and the best value estimate is 0.465581
The sampled fraction of the SSK spanned by the
peripheral point polytope, is in the 95% confidence interval {95, 100}%
32 peripheral points were found.
Assuming these to be representative, and combining with rays, extends
the fixed value list to 0 items
The combined set of 3 rays span 3 of the total 3 ray dimensions.

VALIDATION TEST: Deconstruct FBA solutions (with/without artificial bounds)
into the sum of a Kernel space flux, and a flux along a ray direction.
Agreement between actual and reconstituted solutions are indicated by % discrepancy
of total flux, and angle in degrees between their directions in flux space.

		Flux vector length	% Flux mismatch	Misalignment angle deg
FULL SS KERNEL	Not bounded	0.	Zero	Indeterminate
	Art. bounded	0.	Zero	Indeterminate

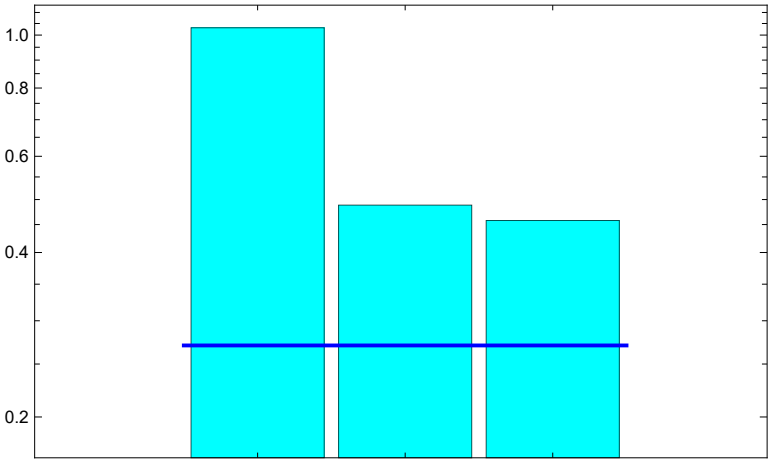


FLATTENING DECISION PLOT

● Green/Blue – Kept chord/diameter;
Red/Purple – Flattened chord/diameter.

MAIN ORTHOGONAL CHORD LENGTHS

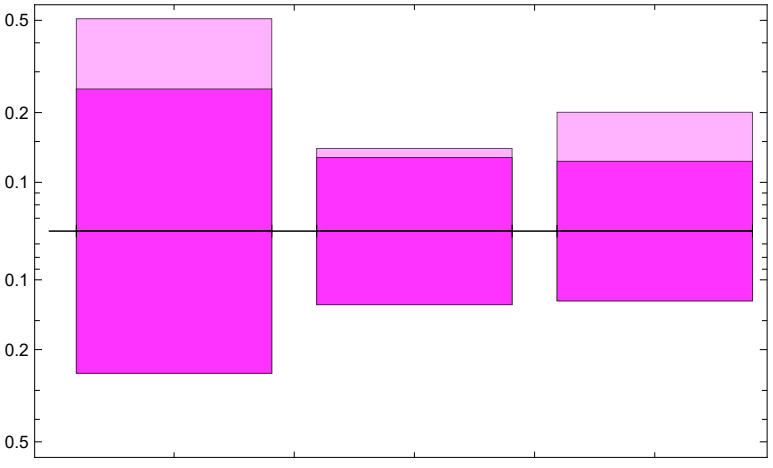
Cyan chords, magenta diameters
Blue line is max inscribed sphere diameter



The mean and maximal aspect ratio's are 1.7 and 2.3

SPLIT DIAMETERS ALONG MAIN CHORD DIRECTIONS

Asymmetric overhang shown in light shading.



Average periphery point non–centrality 11.0%