Full SS Kernel Analysis for Toy Model

Model Toy network with uncapped kernel of type Compact
calculated on Tue 10 May 2022 in 1.44 seconds.

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

	Constraints	Variables	Ray Yield
Stoichio, objective and range constraints	26	9	0
Remove artificial bounds, split reversibles	18	9	0
Fix 0 fluxes, revert reversibles	16	9	0
Apply mass balance and fixed objective value	0	3	0
Apply nontrivial range constraints	7	3	0
RSS after removing redundant constraints	4	3	0
RSS is closed, no capping done	4	3	0

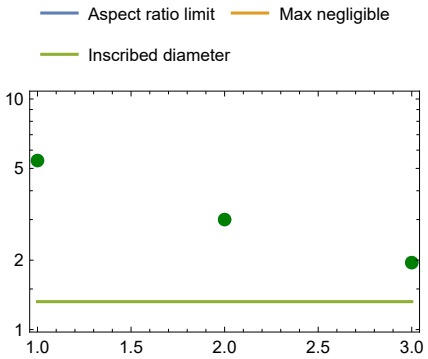
All points in the solution space share the objective value 0.0

CAUTION: The chosen fixed tolerance 0.002 is more than 10% of the largest flux component of the
known (unbounded) optimal flux vector, which has length 0.0
This may be plausible, if the tolerance is small compared to the chord lengths and enclosing radii.

All 3 chords were calculated by LP for the SSK.
The maximal inscribed hypersphere diameter is 1.32163
The diameter and volume coverage ratios, between mutually similar simplices
that encloses the periphery points or the complete SSK, are {100.0, 100.0}% respectively.
The mean SSK diameter is estimated to be in the range {2.42134, 3.45322}
and the best value estimate is 2.42134
The sampled fraction of the SSK spanned by the
peripheral point polytope, is in the 95% confidence interval {97, 100}%
28 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 0 rays span 0 of the total 0 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

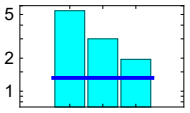


FLATTENING DECISION PLOT

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

RTHOGONAL CHORD

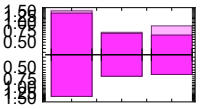
ords, magenta diameters
is max inscribed sphere c



and maximal aspect ratio's a

ERS ALONG MAIN CH

ang shown in light shadi



e periphery point non–cent