3. The Keywords for Peridynamics (1)

- *SECTION_SOLID_PERI (Available in R10., MPP, SMP)
  - Card 1

Variable	SECID	ELFORM
Type	I	I
Default		

ELFORM EQ.48: Peridynamic formulation for TET, PENT, HEX solid elements

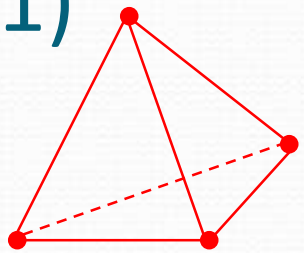
  - Card 2

Variable	HSFAC	PTYPE
Type	F	I
Default	1.01	1

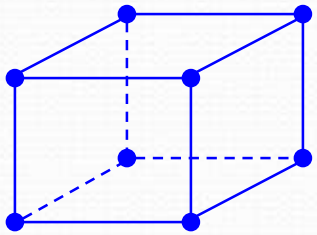
HSFAC: normalized horizon size, **0.6~1.2** is recommended

PTYPE EQ.1: bond based formulation

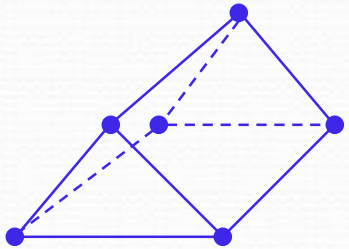
EQ.2: state based formulation



Tetrahedron (TET)



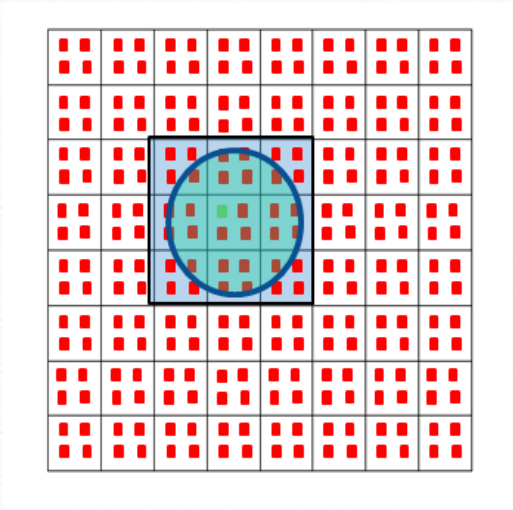
Hexahedron (HEX)



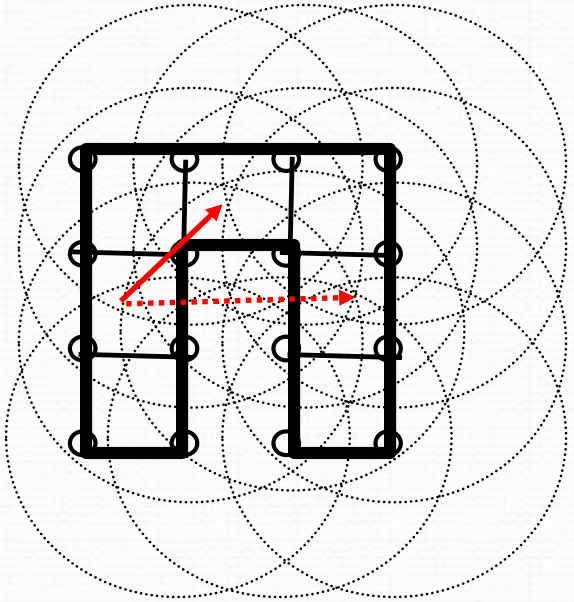
Pentahedron (PENT)

3. The Keywords for Peridynamics (2)

- Element based support searching



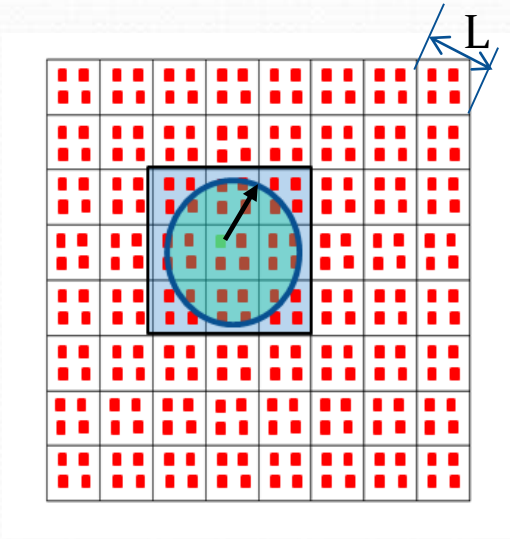
Only reach the adjacent elements



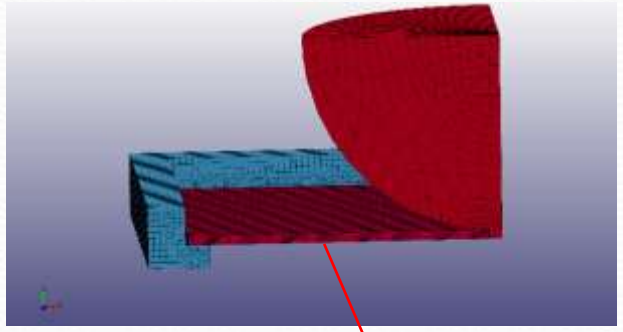
Performance in concave shape domain

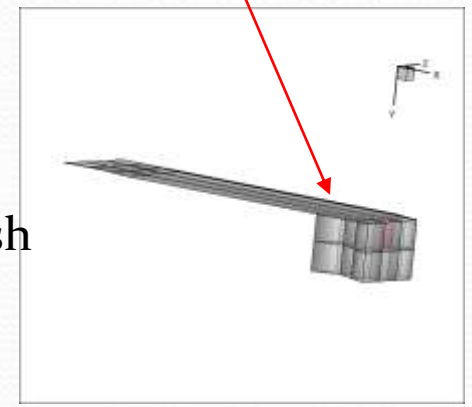
3. The Keywords for Peridynamics (3)

- HSFAC: the normalized support zone size



$$R = HSFAC * L$$

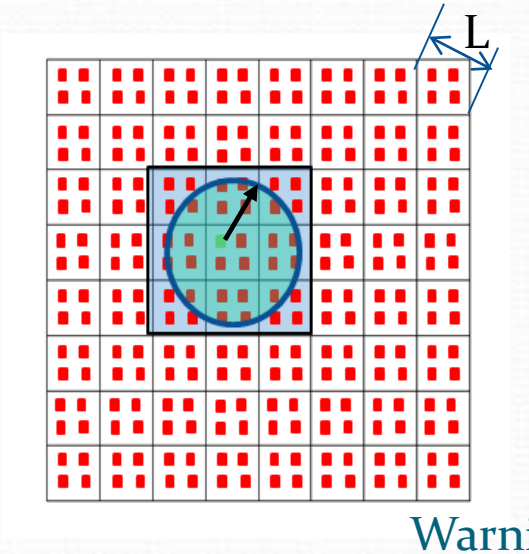




Don't support the extremely poor mesh

3. The Keywords for Peridynamics (4)

- HSFAC: the normalized support zone size



$$R = HSFAC * L$$

HSFAC is the user defined reference support size
LSDYNA will adjust HSFAC automatically to make sure the neighbors of a point is
$10 \leq n_g \leq 136$

In messag file, there are outputs:

Warning. The maximum neighbor number is 36
the minimum neighbor number: 9
which violates the threshold: 10~136 (Min~Max).
The horizon size will be tuned, and new search starts
Warning. The maximum neighbor number is 36
the minimum neighbor number: 9
which violates the threshold: 10~136 (Min~Max).
The horizon size will be tuned, and new search starts

6. The Keywords for Peridynamic Laminate

- **SECTION_SOLID_PERI**

Card 1

Variable	SECID	ELFORM
Type	I	I
Default		

ELFORM EQ.48: Peridynamic formulation with 3 nodes and 4 nodes

Card 2

Variable	HSFAC
Type	F
Default	

…

HSFAC *: The support zone size factor.