

Neutrinos, Supernovae, and Other Adventures

David Cline Memorial Symposium



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&

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NO BOUNDARIES!

David Cline = *High Energy* Physicist

- . . . and absolutely *everything* in science was fair game with David's unique (& prescient) definition of high energy physics
- . . . visionary, creative, always looking for something new and making connections between what others regarded as totally separate subjects!
- . . . Generous, especially with students and young physicists
- . . . very proud of UCLA and UCLA physics

The Weak Interaction in Astronomy!

supernovae as laboratories for fundamental neutrino physics

The cosmos (astronomy) as the ultimate particle physics lab

Neutrinos, Core Collapse Supernovae, and Cosmology:

- Time-of-flight neutrino mass measurements with SN
- Supernova neutrino burst detection on the “cheap”:
charged and neutral currents with heavy nuclei as targets
. . . and associated neutron detection

OMNIS/LAND, Supernova Watch Network

“A New Method for Detection of Distant Supernova Neutrino Bursts”

D. B. Cline, T. Foshe, E.J. Fenyves, G. M. Fuller, B. S. Meyer, J. R. Wilson *Astrophysical Letters and Communications* **27**, 403 (1990)

- Neutrino mass, cosmology, FCNC, collective neutrino oscillations,
the neutrino mass hierarchy, Dark Matter

wonderful neutrino collaborations/scheming with David Cline

Alex Kusenko, Peter Smith, Graciela Gelmini , many others + myself and our students

- Sterile neutrinos: “Crap” . . . “Don’t believe it” . . .
“Interesting . . . wrong, but we need to take it seriously”

