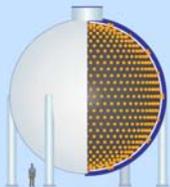


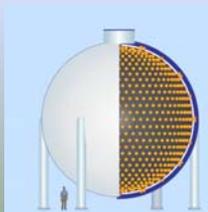
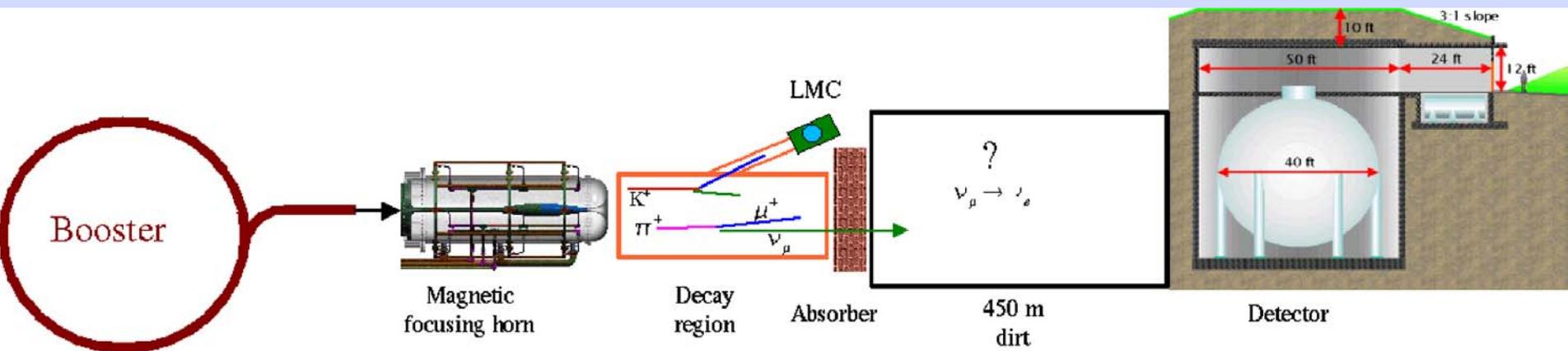
Education and Outreach Efforts at MiniBooNE

challenging expectations



MiniBooNE is...

- a short-baseline neutrino oscillation experiment running in the 8 GeV Booster neutrino beamline at Fermilab
- designed to confirm or rule out the high- Δm^2 oscillation signal observed by the LSND experiment



MiniBooNE is...

- 70 physicists from 13 institutions
 - two national labs
 - nine research universities
 - two undergraduate universities
- five graduate students, fifteen post-docs
- summer research undergraduate and high school students



University of Alabama:

Bucknell University:

University of California,
Riverside:

University of Cincinnati:

University of Colorado:

Columbia University:

Embry Riddle

Aeronautical University:
Fermi National Accelerator
Laboratory:

Indiana University:

Los Alamos National
Laboratory:

Louisiana State University:

University of Michigan:

Princeton University:

Y.Liu, I.Stancu

S.Koutsoliotas

E.Church, C.Green, G.J.VanDalen

E.Hawker, R.A.Johnson, J.L.Raaf

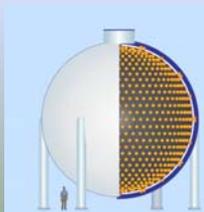
T.Hart, E.D.Zimmerman

L.Bugel, J.M.Conrad, J.Formaggio, J.Link, J.Monroe,
M.H.Shaevitz, M.Sorel, G.P.Zeller

D.Smith

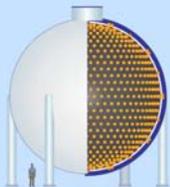
L.Bartoszek, C.Bhat, S.J.Brice, B.C.Brown, D.A.Finley,
B.T.Fleming, R.Ford, F.G.Garcia, P.Kasper, T.Kobilarcik,
I.Kourbanis, A.Malensek, W.Marsh, P.Martin, F.Mills,
C.Moore, P.Nienaber, E.Prebys, A.D.Russell,
P.Spentzouris, R.Stefanski, T.Williams
D.C.Cox, J.A.Green, H.Meyer, R.Taylor

G.T.Garvey, W.C.Louis, G.McGregor, S.McKenney,
G.B.Mills, E.Qeally, V.Sandberg, B.Sapp, R.Schirato,
R.Van de Water, D.H.White
R.Imlay, W.Metcalf, M.Sung, M.O.Wascko
J.Cao, Y.Liu, B.P.Roe
A.O.Bazarko, P.D.Meyers, R.B.Patterson,
F.C.Shoemaker, H.A.Tanaka



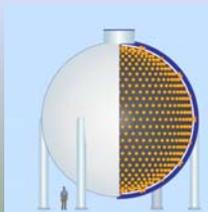
projects and products

- parts of larger whole:
 - articles: FermiNews, Beam Line
 - on-site programs: Ask-a-Scientist, Saturday Morning Physics, Brown Bag Lectures
 - conference presentations/exhibits: NeSS 2002, SC2002



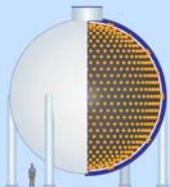
direct student focus

- undergraduate and high school student summer research participation
 - manageable projects, pedagogical opportunities, appropriate continuity
 - benefits not only to students but to collaborators: mentoring/supervising roles
 - requires planning and resource commitment – and that has been available



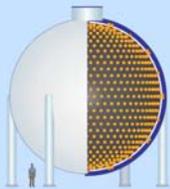
what makes it easier?

- supportive and involved people:
 - energy, engagement, commitment from individuals (especially grad students & postdocs)
 - imagination, validation, direction from collaboration leadership (especially spokesfolk)
 - assistance from laboratory infrastructure (public affairs, visual media, education)



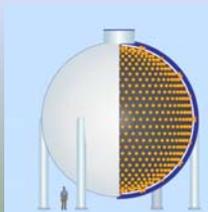
challenges I

- published materials should include not just “knowledge” components, but also “human” factors
 - that is, “teach, yes; but excite, too”
 - easier with tours/talks; harder with “exportable” or “stand-alone” media



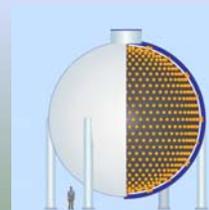
challenges II

- explicitly pedagogical materials should **actively engage** at appropriate level
 - perhaps obvious: target audience should “do” not just “hear/see”
 - again: “packaging for export” – will these materials work more or less “on their own”



challenges III

- assessment: how do we evaluate success of outreach/education?
 - knowledge is easier to measure than attitude change, but is it more important?
 - does successful transmission of information go along with communication of excitement, dedication, engagement of those who “do good physics?”



summary

- MiniBooNE devotes significant energy & attention to outreach/education efforts for a variety of publics
- Marked success in student research participation
- Efforts of many people, catalyzed by effective vision/leadership
- Knowledge increase/attitude change issues could use further exploration
- Avenues for future work include pedagogical materials development, assessment considerations

