# Myron Bander's Legacy at UC Irvine

## Myron Bander Memorial Symposium

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# Myron Bander as Team Leader

- First of all, Myron and Gordon Shaw hired me in 1971 to come and join them at UC Irvine, for which I am eternally thankful and grateful.
- We were also helped, often led, and enjoyed collaborating with top notch post docs, including A. Soni, Michael Barnett, Tom Curtright, Ting Wai Chiu, Sai Ping Li, Marc Sher, and Michael Shin.
- We also were aided by many excellent students, who were recruited and trained by UC Irvine faculty.
- Myron also recruited our new and dynamic faculty: Herbert Hamber, Jonathan  Feng, Arvind Rajaraman, Mu-Chun Chen, Yuri Shirman, and Tim Tait.  They, in turn have recruited many excellent postdocs, visitors, and graduate students, showing the wisdom of Myron's choices.

# Myron as International Collaborator

- Myron had many close US and world friends and collaborators, in major labs, institutions, and universities.  Several are here today.
- These included SLAC, Fermilab, Cal Tech, the Weitzmann, Saclay, Paris, Stockholm, and Russian institutes.
- He brought many visitors as collaborators and also teachers.

# Myron as Physics Chair and Dean

- Myron served twice as Chair of Physics and Astronomy, and recruited many of our faculty, insisting on the highest quality.
- As Dean, Myron initiated the building of Frederick Reines Hall.
- He also helped form the Department of Earth System Sciences, and brought Ralph Cicerone to UC Irvine.
- Ralph Cicerone became Chancellor, and is now the President of the National Academy of Sciences.
- The ESS graduate program was just ranked the top in the nation.

# Mentoring by Myron

- Myron was always my friend, and close consultant on new ideas, and speculations.
- He also set me straight or backed me up on deeper physics knowledge, to have confidence in our joint or separate calculations.
- Over 15 years we collaborated with others on ten publications or conference presentations.

# Collaborations with Myron

- With Gordon Shaw and T.-W. Chiu, using a Dirac like equation, we showed how to get a light composite fermion, with a mass a tenth that of the constituent sum.
- With Michael Barnett, we found that large perpendicular momentum data could be broken into in three regions, the third one being the QCD tree graph prediction.
- With Soni we studied CP violation in B mesons, which Soni has comprehensively pursued and will report on.

# Bound State Mesons with Myron

- Another project with Myron was calculating meson spectra in QCD with a Dirac type relativistic formalism for the light quark in a heavy meson, with Boaz Klima, and Uri Maor.
- I followed that up with papers on radiative transitions with a student Farhad Daghighian, and electromagnetic annihilations and weak decays with a student Tony Yao, and continued with a student Eric Altshuler.
- Improved lattice calculations have taken over that field.

# Myron and CKM test with New Physics FCNC

- Working with Michael Shin, we studied an E6 model with extra heavy down quarks, but no corresponding new up quarks.
- With one extra down quark, the CKM matrix was extended to a 4x4 matrix with six angles and three phases, instead of the usual 3x3 with three angles and one phase.  It made the unitarity triangle into a quadrangle.
- This gave flavor changing neutral currents to the Z, and bounding its effects from experiments gave tests to the accuracy to which the CKM matrix was being determined.
- I followed this up with Yossi Nir, and later with students W.-S. Choong and D. Hawkins.
- Soni and Enrico Lunghi have been comprehensively studying the accuracy of the CKM matrix with a generic extra contribution.

# Lunches with Myron

- As people here know, Myron was a most interesting lunch and dinner companion.
- He would tell us of his travels and meetings with physicists, the best restaurants, and travel adventures.
- He had a wealth of stories about physicists, most of them humorous, many of them significant historical accounts.
- He was also an expert on history, cultures, and languages.

# Energy Production and Lifelong Learning

- Since retirement I have turned to studying energy production and use, with respect to mitigating climate change.
- I have given lectures on this, which I have posted on my website, and my newer blog.  I have often discussed this with Myron at lunches with colleagues.
- I also attend a lot of Osher Lifelong Learning Institute classes, and teach particle physics topics to them.
- I arrange physics speakers for lifelong learning, and my colleagues here have been very generous giving lectures to them.
- I recommend that others contact such a local institute to publicize particle physics, since they are a very interested audience.

# Myron's Legacy

- It is not really necessary to tell this crowd about Myron's legacy, since we all feel it in our close association with him, and the many ways in which he impressed us, and in which we will remember him.
- I hope the forgoing will just remind us of some of the many ways that he has helped us all.