



# Physicists Discover Another Unifying Force: Doo-Wop

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Published: December 29, 1998

The arcane language of physics is not exactly the stuff of song lyrics, but the Cernettes, billed as the world's first particle physics rock band, have hit the Internet. Even if nonphysicists fail to get their musical jokes, the Cernettes count on a growing audience of admiring scientists.

The Cernettes take their name from CERN, the acronym for Europe's pre-eminent high-energy particle laboratory straddling the French-Swiss border near Geneva, with which all the singers are associated. Membership in the four-woman amateur singing group and its band changes from year to year, but the Cernettes' songwriter-lyricist, Silvano De Genarro, constantly provides material to keep his group up to par at the many physics meetings and celebrations where they perform.

On the job at CERN, Dr. De Genarro, a computer scientist, uses virtual reality to manipulate the virtual counterparts of battleship-size particle detectors that must fit into cramped niches in the laboratory's 17-mile circular accelerator tunnel. But in his spare time he writes songs of the doo-wop style popular in the 1950's and 60's.

"The average physicist around here was growing up in those years," Dr. De Genarro said in an interview, "and they get a nostalgic kick out of my tunes."

Some of his songs involve the Large Hadron Collider, or L.H.C., nearing completion in CERN's circular accelerator tunnel spanning the border between Switzerland and France near Geneva.

Here is a typical verse from Dr. De Genarro's lament "Collider":

I gave you a golden ring to show you my love,  
 You went to stick it in a printed circuit  
 To fix a voltage leak in your collector  
 You plug my feelings into your detector  
 You never spend your nights with me  
 You don't go out with other girls either  
 You prefer your collider  
 You only love your collider.

Celebrating the L.H.C., which will be a Mecca for American as well as European high-energy physicists, the Cernettes have renamed themselves "Les Horribles Cernettes," or L.H.C. for short, and they have posted some songs on their Web page:  
<http://sgvenus.cern.ch/musicclub/cernettes>.

Owners of computers with sound cards can hear the Cernettes (who often emulate the Supremes) croon catchy tunes like "Strong Interaction" ("You quark me up, you quark me down, you quark me top, you quark me bottom"), "Antiworld," "Surfing on the Web" and "Microwave Love."

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Since its birth in 1954, CERN's achievements have included monumental discoveries in particle physics, a succession of Nobel prizes and the construction of a proton collider that may yield enough energy to discover the elusive Higgs boson -- a theoretical particle supposedly responsible for endowing all matter with mass -- and a magazine read by physicists around the world.

But for ordinary people, CERN's most memorable achievement was to invent the World Wide Web as a way to organize and find information on the Internet. The laboratory originally used its Web system as a communication network for physicists, but it grew as the Internet became as universal as the world's postal system. As the Web outgrew the laboratory, CERN cast off its creation, which is now administered by others.

Mr. De Genarro, an Italian, writes his songs entirely in English "because English is the universal language of physics."

But this has created something of a language barrier between the CERN laboratory and the French and Swiss people outside it. Most of CERN's neighbors do not understand the jokes in his songs.

"Our concerts are more popular in France than in Switzerland," he said, "because the Swiss seem to think we're too noisy."

The Cernettes are not the only performers specializing in physics songs.

In the United States, Dr. Lynda Williams -- a former go-go dancer who teaches physics at San Francisco State University, has become a smash hit at physics conferences. Her on-stage gyrations and clever allusions to physics keep audiences of specialists roaring with laughter.

One of the theories she tackles is "supersymmetry." Many physicists believe this theory will eventually unite the realm of the ultra large (as described by relativity) and the ultra small (governed by quantum mechanics). The idea is that for every particle of matter there may be an unseen supersymmetric particle of some force carrier, and that for every known force carrier (photons of light, for example) there is an unseen particle of supersymmetric matter.

Such particles are called "sparticles," "squarks," and so on. Dr. Williams's song, to the tune of George Gershwin's "S'wonderful," pokes fun at the Government's cancellation in 1993 of the Superconducting Supercollider (S.S.C.), which would have been the largest accelerator in the world:

S'quantum dream, squandered it,

Bad publicity.

A'awfully sad, S'could of had

Our own S.S.C.

But where did the funding go?

Must be hiding with the higgsinos

S'wonderful, s'marvelous

There's still the L.H.C!