ii) the dereddened spectrophotometric values and the H_γ profile, with the similar ones estimated from line blanketed ATLAS 9 model atmospheres calculated with 10 times solar metallicity, which better represent the atmospheres of the CP stars of this group. We also synthesized the H_γ region using the spectral synthesis code SYNTHE. The following parameters were finally adopted:

$$T_{eff} = 11\,200 \text{ K} \qquad \log g = 3.84$$

We determined the metal abundances from the equivalent widths with program WIDTH 9. Abundances were derived from Fe I and Fe II lines for a range of possible microturbulent velocities (ξ). For the final values, the abundances are not a function of equivalent widths or minimize the rms scatter of the abundances. From these species a mean microturbulence of 2.4 km s^{-1} is found. Any microturbulence is unexpected if the magnetic CP stars have quiescent atmospheres as required by radiative diffusion theory; alternatively, the derived microturbulence is a manifestation of an organized magnetic field. Following a method developed by the authors in a previous paper, we found that the surface magnetic field is about 3.2 KG.

Compared with the Sun, the light elements of HD 133029 except silicon, are slightly deficient or solar, and all the heavier elements, except nickel, which is solar, are greatly overabundant. The "iron peak elements" are tipically 10 times overabundant except chromium which is 100 times solar. The rare earths are 1000 times overabundant.

PRODUCTION OF STRANGE MATTER IN NEUTRON STARS

G. Lugones [1] and O.G. Benvenuto [2]

At present it seems possible that an almost symmetric, three flavor (u, d, s) quark-gluon plasma currently known as "Strange Matter" (SM) being the actual ground state of hadronic matter. If so, most of the neutron stars should be strange stars. SM formation may also hide some of the clues of the type II supernova explosion mechanism. SM should have, at zero pressure, a density $\rho \approx 2\rho_{sat}$ where $\rho_{sat} = 2.7 \times 10^{14}$ gr cm^{-3} corresponds to the nuclear matter saturation.

We describe the physical conditions at which we may expect the SM formation from nuclear matter as a combustion product. It is shown that the neccesary condition for the burning of nuclear matter into strange matter is $E - 3P > 4B$, where E and P are the energy per volume unit and pressure of nuclear matter and B is the Bag Constant of the SM equation of state (EOS) in the MIT bag model. Here we employed the typical value of $B = 60$ MeV fm^{-3}. With such value, we find that a nuclear matter EOSs can be burnt to SM only if it is not extremely stiff. Such burning may occur for the EOSs of free neutrons, Bethe-Johnson and Lattimer-Ravenhall. However, in the case of the Walecka's EOS no burning is possible.

After the first SM seed appears, there are two ways by which SM may pursue its formation: deflagrations and detonations. We show that deflagrations cannot occur because the reaction rates give flame velocities much lower than the hydrodynamically allowed ones. Nevertheless, Chapman-Jouguet detonations are indeed possible. As a simplified model of such processes, we analyze a spherical detonation propagating in a neutron star. After the detonation, the just formed SM decompresses and cools down by a rarefaction wave. We show that the energetically preferred phase is indeed the SM and so, that the result of such process is the formation of a strange star.

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DISTRIBUTION OF BINDING ENERGIES IN WIDE BINARIES

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We analyze a sample of wide binaries with estimated ages taken from the catalogue of Poveda et al. (1994, RevMexAA 28, 43), paying special attention to the differences in the distribution of semimajor axes and binding energies between the probably young and probably old binary systems. For the study of the distribution of binding energies we took those binaries with estimated spectral types, which allowed us to derive their masses.

Our results are in good agreement with others that show a fast decrease in the number of weakly bound binaries with binding energies $< 10^{-4}$ $M_\odot$ AU^{-1}, or semimajor axes greater than about 10^4 AU.

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