

ics, edited by A. Zichichi (Plenum, New York, 1977).

¹¹In the case of a *global* U(1) symmetry, additional fluctuations will be produced by large-scale variations of the Goldstone field [see A. Vilenkin, *Phys. Rev. Lett.* **48**, 59 (1982)]. However, the fluctuations produced by the strings are greater by a factor of $\ln(t/\lambda) \sim 100$ and therefore dominate. The Goldstone field mechanism in its pure form (without strings) operates with spontaneously broken, simply connected global symmetry groups, such as SU(N) with $N \geq 2$.

¹²The required magnitude of $G\mu$ depends on the behavior of closed loops (Ref. 4). In different scenarios the value of $G\mu$ may vary from 10^{-3} to 10^{-5} .

¹³A. Vilenkin, *Nucl. Phys.* **B196**, 240 (1982); G. Lazarides, Q. Shafi, and T. Walsh, *Nucl. Phys.* **B195**, 157 (1982).

¹⁴Another way to see the character of vacuum structures of the model (7) is to note that the ground state consists of an infinite number of disconnected points, $\theta = 2\pi n$, and we must have domain walls. However, θ is defined only modulo 2π , and thus different domains

do not have to be completely separated by the walls. Domain walls can have boundaries on which θ is undefined and, therefore, $\rho = 0$. These boundaries are vacuum strings.

¹⁵Q. Shafi, private communication; T. W. B. Kibble, G. Lazarides, and Q. Shafi, to be published.

¹⁶We disregard the possible dependence of m on temperature.

¹⁷A. E. Everett, *Phys. Rev. D* **10**, 361 (1974).

¹⁸After this paper was submitted, we noticed a paper by P. Sikivie [*Phys. Rev. Lett.* **48**, 1156 (1982)] discussing the vacuum structures in axion models. Sikivie appears not to have noticed the presence of strings; however, he shows that in axion models with N quark flavors there are N types of domain walls, so that the Higgs phase changes by $2\pi/N$ across each wall. [Our model of Eq. (7) corresponds to $N=1$.] In this case each string is connected to N different domain walls; the cosmological evolution of the system is more complicated and may lead to conflict with standard cosmology.

ERRATA

NEW SPECTROSCOPIC DETERMINATION OF THE DIPOLE MOMENT OF HD IN THE GROUND VIBRATIONAL STATE. J. Bradley Nelson and G. C. Tabisz [*Phys. Rev. Lett.* **48**, 1393 (1982)].

In Table I, Ford and Browne's calculated values for $R(2)$ and $R(3)$ should read as 8.28 and 8.26, respectively, not as 3.28 and 3.26. The symbol in the denominator of Eq. (2) should be p_{v_J, v'_J}^A .

UPPER-HYBRID WAVE COLLAPSE. L. Stenflo [*Phys. Rev. Lett.* **48**, 1441 (1982)].

Equation (2) should read

$$\omega^2 \approx \omega_{UH}^2 - \frac{k_z^2}{k_\perp^2} \frac{\omega_p^2 \Omega_e^2}{\omega_{UH}^2} + \frac{k_\perp^2 a^2}{1 - 3\Omega_e^2/\omega_p^2}. \quad (2)$$