J. Stroth asked the question:

"Which are the experimental evidences for a long mean free path of phi mesons in medium?"

Answer by H. Stroebele
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(based on the study of several publications on phi production and information provided by the theory friends of H. Stöcker)

Before trying to find an answer to this question, we need to specify what is meant with "long". The in medium cross section is equivalent to the mean free path. Thus we need to find out whether the (in medium) cross section is large (with respect to what?). The reference would be the cross sections of other mesons like pions or more specifically the omega meson. There is a further reference, namely the suppression of phi production and decay described in the OZI rule. A "blind" application of the OZI rule would give a cross section of the phi three orders of magnitude lower than that of the omega meson and correspondingly a "long" free mean path.

In the following we shall look at the phi production cross sections in photon+p, pion+p, and p+p interactions.
The total photoproduction cross sections of phi and omega mesons were measured in a bubble chamber experiment (J. Ballam et al., Phys. Rev. D 7, 3150, 1973), in which a cross section ratio of R(omega/phi) = 10 was found in the few GeV beam energy region.
There are results on omega and phi production in p+p interactions available from SPESIII (Near-Threshold Production of omega mesons in the Reaction p p → p p omega", Phys.Rev.Lett. 83 (1999) 492-495). The authors find an omega to phi ratio (corrected for difference in mass etc) of 200. Finally, phi production in pion+p interactions is studied in Döring et al., Phys.Rev. C78 (2008) 025207 (The Role of the N*(1535) resonance and the pi- p ---> KY amplitudes in the OZI forbidden pi N ---> phi N reaction). The experimental data on phis stem from A. Baldini, V. Flamino, W. G. Moorhead, and D. R. O. Morrison, Total Cross Sections of High Energy Particles: Landolt-Börnstein, Numerical Data and Functional Relationships in Science and Technology, edited by H. Schopper (Springer- Verlag, New York, 1988), Vol. 12a.

This paper has a well written introduction into the subject (of phi suppression) which we quote here:
"The pion+p → phi+n reaction, assuming the phi is a pure $s\bar{s}$ state, is OZI forbidden and, as a consequence, it should have a very small cross section compared to analogous OZI allowed ones. Actually, the pion+p → phi+n cross section close to threshold [1] is about a factor fifty smaller than that of the pion+p → omega+n reaction [2, 3, 4]. Yet, that cross section is still less suppressed than one might expect. The usual way reactions escape the OZI restrictions is through intermediate steps (like loops) which make the initial state couple to some state with both u, d and s quarks, which in a second step couples to the pure $s\bar{s}$ of the phi. This is the case for instance for the phi → pi^0 pi^0 gamma reaction, which is reproduced fairly well in terms of kaon loops where the kaons couple to the phi on one side and to the non-strange components on the other side."
Refs [2, 3, 4] are:
[2] R. J. Miller, S. Lichtman and R. B. Willmann, Phys. Rev. 178 (1969) 2061.
[3] L. E. Holloway et al., Phys. Rev. D 8 (1973) 2814.
[4] G. I. Lykasov, W. Cassing, A. Sibirtsev and M. V. Rzyanin, Eur. Phys. J. A 6 (1999) 71

The experimental data on phi production suggest that the phi is suppressed with respect to other mesons, however much less than expected from the OZI rule which explains the small branching fraction of the phi decay into pions.
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We now consider the cross section of phi and omega on nucleons. Obviously there are no direct measurements. Thus theory has to be invoked. There is a paper on omega+N cross sections by Lykasov, Cassing, Sibirtsev, Rzyanin. Eur.Phys.J. A6 (1999) 71-81, and another one on the phi by Sibirtsev, Hammer, Meißner, Eur.Phys.J. A37 (2008) 287-301). From these we deduce a cross section ratio R(omega/phi) ~ 3.

Again this ratios differs strongly from the expectation based on the OZI rule, which predicts a ratio of order 10**3. The reason for this huge difference can be found in the details of the OZI rule. This rule (σ(A+B → X+phi)/σ(A+B → X+omega) = 0.0042), applies to exclusive(!) phi production in A+B => phi + X with A, B, and X being non(!) strange hadrons.
For a recent introduction into the OZI subject see the introduction of the article of the COMPASS collaboration on "Spin alignment and violation of the OZI rule in exclusive omega and phi production in pp collisions", Nucl.Phys. B886 (2014) 1078-1101.
More specific literature on OZI can be found in "On the current status of OZI violation in pi+N and p+p reactions" by Cassing and Sibirtsev, Eur.Phys.J. A7 (2000) 407-413,

My summary on the experimental situation: phi production is suppressed with respect to omega production by a factor of two to ten. A similar ratio is found for the cross section of both mesons with nucleons. This is consistent with the prediction of quarkonium models (see below). As to the in-medium cross section of the phi it will be close to normal, since “intermediate steps” (see introduction in Döring et al. above) are even more probable in the medium than in interactions with free nucleons.

As to the "predictions" of QCD Horst Stöcker asked his theory friends for comments. The summary by Leonid Frankfurt reads:
Hi Horst, I want to summarize the theoretical situation.

According to quarkonium models the phi meson has a smaller radius than that for the usual hadrons build of light quarks. This is the consequence of larger mass of s quark and asymptotic freedom. Since QCD is the renormalizable quantum field theory the
interaction of phi with usual hadrons should be suppressed (direct consequence of the renormalization group). Quarkonium models predict suppression factor ~(m_q/m_s)^2\approx 1/2. (m_q is the mass of constituent light quark u, d, m_s is the mass of strange
constituent quark.) More generally this factor is the ratio of scales characterizing a world consisting of light and strange quarks. Asymptotic freedom add small additional suppression.

Renormalization group in QCD predicts that the interaction increases more rapidly with collision energy. Thus suppression factor depends on energy. In the energy range 8-10 GeV the suppression factor is experimentally \approx 1/2.

At lower energies suppression factor is not well investigated -rare data exist. M.Gell Mann has drawn attention long ago that the constants of interaction of strange particles with usual hadrons are suppressed. Thus the interaction of phi meson with pions, pion cloud around phi meson should be suppressed- this can be demonstrated within the constituent quark models of hadrons. Thus phi meson is not active participant of Chiral QCD Lagrangian.

Conclusion: it is unclear whether phi should be in the equilibrium with the world of hadrons build of light quarks.

Best Lonya