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Dear Colleague,

It is a pleasure for me to write in support of the application of Avihay Kadosh for a postdoctoral position at your institute.

Avihay has completed his PhD under my supervision and excellently defended his thesis on April 23, 2012. I met Avihay when he came from Israel to the Netherlands to look for a PhD position. He wanted to continue his research in high-energy physics, and since the beginning he expressed interest in the search for a unified description of cosmology and particle physics.

During these years I came to know Avihay rather well as a researcher and as a person, and can say with no hesitation that Avihay has a remarkable potential for high scientific achievement. He deserves all chances to continue his career as a researcher. However, the working path with Avihay was not without difficulties. Those difficulties, together with the many positive aspects of our collaboration, may explain at the same time his rather low productivity during the first years of his PhD, and my present and reinforced confidence in his abilities.

At the beginning of his thesis, Avihay invested considerable time in understanding an objectively difficult problem, i.e. the dynamical generation of branes in accordance with a realistic cosmological picture. It did not lead to publications for some time, however it contributed to shape Avihay's profound knowledge of the field.

Recently, we attacked the problem from a more promising point of view. Avihay established a collaborative effort with Aharon Davidson in Israel, and Avihay is the main person in pursuing the idea of a "slinky" scenario; its formulation and first attempts for a solution with realistic cosmology have appeared in the paper "Slinky evolution of domain wall brane cosmology", arXiv:1202.5255[hep-th], published in Phys. Rev. D 86, 124015 (2012) where Avihay is first author.

In parallel, we have focused on model building in the context of warped extra dimensions. In particular, we have constructed an alternative to flavour anarchic models by use of a discrete A_4 flavour symmetry on a AdS background with custodial symmetry (JHEP 1008:115,2010). Main goal of this work was to accommodate the observed pattern of masses and mixings in both the lepton and quark sectors. We have successively completed a thorough analysis of flavour-changing neutral current (FCNC) processes



within the same model(JHEP1106:121,2011), where the pleasing feature is a natural suppression of dangerous new physics contributions to observables like the neutron electric dipole moment. This work, and further extensions, has been presented by Avihay at DISCRETE2010 (arXiv:1102.4105), FLASY2011, FLASY2012 and SSP2012 (invited contributions). Avihay has contributed in an essential way to all publications, mastering every part of the work and with insights into new directions.

More recently, Avihay was invited to present his work at various places in Europe and the US. In these situations he seems to be quite able to establish contacts and make fruitful use of his new ideas. Avihay is currently working on numerous new projects: a revisit of D0 mixing in quark-squark alignment models with G. Perez and P. Paradisi, and a new idea on modulus stabilisation with domain wall branes, where the backreaction of the metric is taken into account. He is also working on a critical analysis of quark mixing and naturalness in warped extra dimensions, including a comparison of patterns in the anarchic hypothesis with the more hierarchical addition of flavour symmetries, such as A4; an aspect of it is a new analysis of vacua misalignment effects. Finally, further work on the Slinky idea is also in progress.

Avihay is strongly motivated, he analyses with critical eye the results coming from the LHC, neutrino experiments, and experiments with relevance for cosmology.

After the recent discovery of a new Higgs-like particle, the next compelling task is to understand its properties and implications and to search for additional signs of new physics. Probably more than ever, we need to explore alternatives to the simplest supersymmetric scenarios and to the most traditional views in high-energy physics. The merging of cosmological and particle physics tools and implications in Avihay's research path is coming at the perfect time; to give an example, the slinky idea is a genuinely new avenue that, if pursued, might let us bridge in a new way the evolution of the Universe with the description of elementary particle interactions.

I am fully confident that Avihay can produce results of excellent quality and be initiator of productive collaborations. It is important to consider the fact that he is right now in a productive phase and has himself shaped a line of research with the potential of generating results of high impact.

For all these reasons, I strongly recommend Avihay Kadosh for a postdoctoral position at your institute. I remain at your disposal for any further information you may need.

Yours sincerely,



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