Abstract Submitted
for the APR05 Meeting of
The American Physical Society

Origin of Mass. Prediction of Mass Per Newton-Maxwell Solution* P-I. JOHANSSON, Uppsala Univ. SWE, J.X. ZHENG-JOHANSSON, IOFPR, SWE — We call as by our particle formation scheme an oscillatory charge e (or $-e$) together with the electromagnetic waves generated by it as a whole a basic particle. As a direct Newton- Maxwell solution we obtain for the particle's component wave- trains, of an angular frequency ω and traveling at the velocity of light c, a translational kinetic energy $\in= mc^2$ and alternatively an oscillatory mechanical energy $\in= \hbar^*\omega$. $\in$ amounts just to the particle's total energy and m its inertial mass; $2\pi\hbar^*$ is expressed by wave-medium parameters and equal to the Planck constant. We further obtain the particle's (semi-empirical) de Broglie wave frequency $\omega_d = \gamma\Omega(v/c)^2$, and wavelength $\lambda_d = (2\pi/\omega)v = (\Lambda/\gamma)(c/v)$, etc., where $\gamma = 1/\sqrt{1-(v/c)^2}$, $\gamma\Omega = \omega$ and $\Lambda/\gamma = \lambda = (2\pi/w)c$. As to its origin, mc^2 represents an energy required for the particle to counterbalance a vacuum frictional force against the particle's total motion. Our proposal for origin of mass is in conformity with Higgs mechanism, but we work in real-space whilst Higgs in momentum-space. By our solution, to break up a building block of the vacuum–a bound p- and n-vaculeons of charges +e,-e, requires an energy $\sim 2\times 10^{16}$ GeV, the scale of a Planck mass. ∗Refs: J.X. Zheng-Johansson and P-I. Johansson, with Foreword by Prof. R. Lundin, in: "Unification of Classical, Quantum and Relativistic Mechanics and of the Four Forces" (Nova Science, 2005); arXiv:Physics/0501037.

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Date submitted: 12 Jan 2005 Electronic form version 1.4