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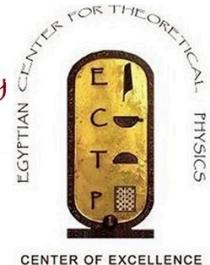
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# The Gravitational Memory Effect

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In this dissertation we intend to study the background related to the memory effect that leads to “gravitational-wave memory effect” and two types of memory effect:(1) We intend to study a whole outline of what is memory effect.(2) We intend to solve the linear memory for N Gravitationally Unbound Particles where we will study different kinds of spherical harmonics, mass quadrupole leading to linear memory effect.\begin{equation}\boxed{\{\Delta h^{TT}\}\_{jk}}=\triangle\{\sum\_{A=1}^N\}\{\frac{4M\_A}{r\sqrt{1-v^2(A)}}\}\{\frac{v^j\_A v^k\_A}{1-\{v\_A\}^N}\}\}^{TT}\}\\end{equation}(3) Then we try to examine the memory effect for the individual radiated neutrinos\cite{mukhopadhyay2021memory}\begin{equation}h^{xx}\{TT\}=\{h(r,t)\}=\{\frac{2G}{rc^4}\}\{\int^{t-r/c}\{-\infty\}\}dt'L\_{\nu}(t')\}\{\alpha(t')\}\\end{equation}(4) Then we will discuss briefly about the introduction of non linear memory effect.

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