### Indicative Energy Density and relationship with G value

<table>
<thead>
<tr>
<th>Sr #</th>
<th>Object</th>
<th>Mass</th>
<th>Radius</th>
<th>Energy Density</th>
<th>Expected Stretch Value</th>
<th>Expected G value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quark</td>
<td>4.55E-29</td>
<td>1E-16</td>
<td>9.79665E+35</td>
<td>Very High</td>
<td>Very High</td>
</tr>
<tr>
<td>2</td>
<td>Neutron</td>
<td>1.6744E-27</td>
<td>5.5E-16</td>
<td>2.16689E+35</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>Neutron Star</td>
<td>3.4E+30</td>
<td>11000</td>
<td>5.50006E+34</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>4</td>
<td>H Atom</td>
<td>1.67531E-27</td>
<td>5.3E-11</td>
<td>2.42289E+20</td>
<td>Low</td>
<td>Prevalent</td>
</tr>
<tr>
<td>5</td>
<td>Earth</td>
<td>2.95E+24</td>
<td>637000</td>
<td>4.91473E+20</td>
<td>Low</td>
<td>Prevalent</td>
</tr>
<tr>
<td>6</td>
<td>Sun</td>
<td>2E+30</td>
<td>695700000</td>
<td>1.27888E+20</td>
<td>Low</td>
<td>Prevalent</td>
</tr>
</tbody>
</table>

**Notes:**
1. Quark Mass is taken as 5 times heavier than electron.
2. Quark Radius is taken as 0.1fm.
3. Neutron Radius is taken as 0.55fm.
5. Neutron Star radius is taken as 11 Kms.
6. Hydrogen Atom radius is taken as 53pm.

**Conclusions**
1. The Energy Density at atomic levels onwards for normal matter is quite same, thus normal gravity and normal G value = 6.67 * 10^-11 units.
2. The energy density at Quark is highest thus highest G value, could it be 10^41 times?
3. The energy density at Hadron level is high thus high G value, could it be 10^35 times?
4. The energy density at Neutron Star level is also high, thus high G, any implications?
5. Energy density for atomic level onwards is low and almost same, so more or less prevalent with small superimposed variations from other objects.
6. We can hypothesized that higher energy density causing higher stretch and thus higher G.

**Proposals:**
1. We can have an Energy Density Vs G plot, where G falls rapidly and asymptotically from around 10^41 times prevalent to prevalent G value.
2. Exact value of G around Quarks / Neutrons can be ascertained based on required force.
3. We can hypothesize that the quarks forms on the finest string which is stretchable, so when the quarks are brought closer the space between relaxes, thus less G value.
4. Stretch beyond quarks level, creates new particles and stretch relaxes.

**Problems:**
1. Electron : How do you account for this?
   It is quite likely that electron (and lighet particles) being point particles, just creates fleeting trace.
2. For stretch around Neutron, should we consider its constituent quarks rest mass (12 MeV) only or should we consider 939 MeV. Assuming that a major component of 939 MeV comes from the gravitational stretch energy only.