Theories that apply to physical systems of everything

Izawa K.-I.

1) quantum mechanics

2) general relativity

   cf. Einstein gravity

3) ?

1) **quantum mechanics**

2) **general relativity**

      cf. Einstein gravity

3) supersymmetry

      maximally extended

gravitino $\psi_\mu{}^A$ $(A = 1, ..., \mathcal{N})$

$$\psi_\mu{}^A = \psi_{\mu\perp}{}^A + \frac{1}{m_A}\partial_\mu\lambda^A$$

lighter   **stronger**

heavier   **weaker: decoupling**

$\#_{\mathsf{SUSY}}$ **depends on the energy scale.**

0: **Higgs**

squark   sgluon

1/2: quark

gluino   higgsino

1: gluon

graviphoton

3/2: gravitino

2: **graviton**

1) quantum mechanics

2) general relativity

3) ?