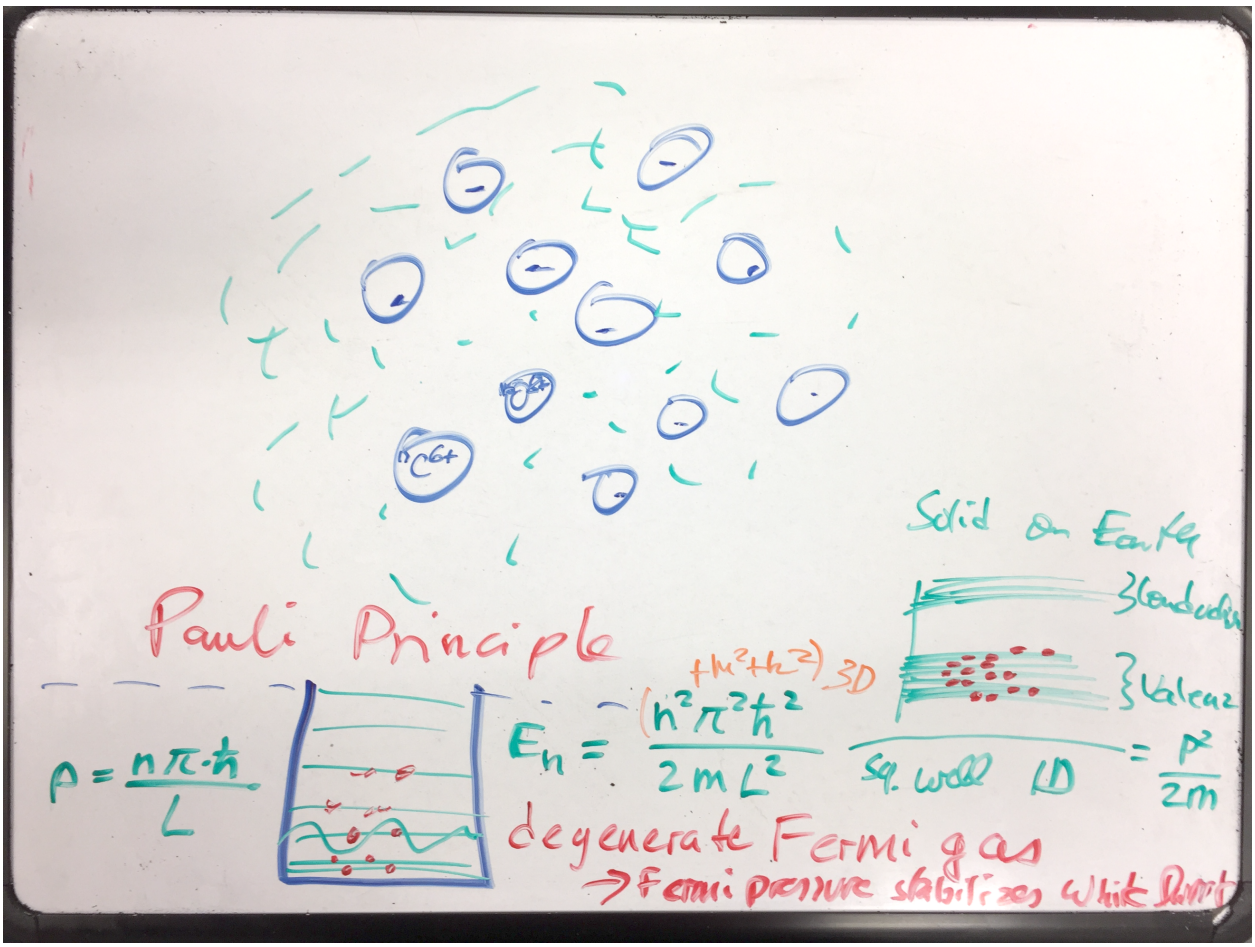
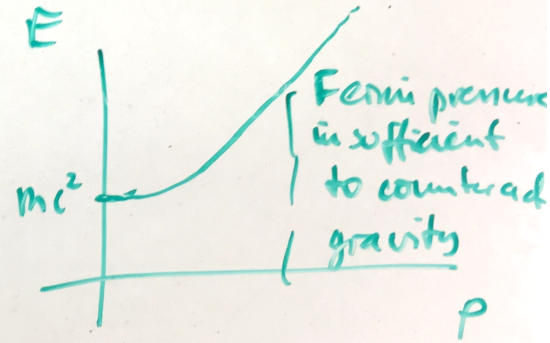

Pauli Principle
$p = \frac{n\pi\cdot\hbar}{L}$
$E_n = \frac{(n^2\pi^2\hbar^2}{2mL^2}$ $+n_x^2+n_z^2)$ 3D
Sq. well 1D
$= \frac{p^2}{2m}$
Solid on Earth
degenerate Fermi gas
→ Fermi pressure stabilizes white dwarf

$$E_n = \frac{p^2}{2m} \geq$$

$$E = \sqrt{m^2c^4 + p^2c^2}$$

$$= mc^2 + \frac{p^2c^2}{2mc^2} + \frac{1}{8}\frac{p^4}{m^2c^2} \cdots\cdots$$

as $u \to c \Rightarrow E \sim pc$



Consequences:

1) $p + e^- \longrightarrow n + \nu_e$

$\Rightarrow$ neutron star

$\simeq 10$ km

2) Supernova