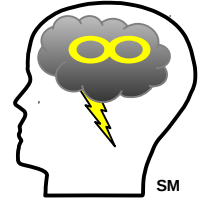


# A Design for a Permanent Space Station Colony

## A Communication of the Intractable Studies Institute

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### Requirements for a Permanent Space Station Habitat

1. The visitor/settler profile will include all humans, so there cannot be any conditions such as zero-gravity that hinders any age group.
2. Some personnel will be permanently living in the habitat space station.
3. Artificial gravity is necessary to not lose bone density, as that would make bones weak.
4. Artificial gravity is necessary so the eyes don't lose their natural shape. Rotation creates Artificial Gravity Station (**AGS**).
5. Artificial gravity is necessary so that eating a meal and drink on a table are normal to the experience on Earth. Eating food/drink from tubes is a significant loss of quality of life.

6. Artificial gravity is necessary so that going to the restroom is identical to on Earth.

7. There will be plant life in the station that converts the CO<sub>2</sub> that humans exhale into oxygen for humans to inhale.

8. Human waste will be converted to soil material so that there is a natural reuse cycle of biomass fertilizer.

10. Humans will consume the produce of the agriculture grown in the habitat to be self-sufficient.

11. Robots can be utilized to perform some of the hazardous work in space, and also can implement a utopian labor model.

12. The colony is a microcosm of Earth life, with police force, health services, court, restaurants, utilities, constitutional democratic republic, all on a micro-scale.

### Design:

Material construction is a graphene-layers / kevlar / carbon-fiber fabric "AIR BAG". Interior is a big air volume. Pressurization to 1 Earth atmosphere in outer space causes rigidity. It is very low mass. One cord runs end to end along rotational axis to keep ends together. Non-rotating airlocks hubs are on both ends for docking craft. Rotation provides the gravity effect. Triple layer of outer solar cell backed by water bag provide 1<sup>st</sup>/2<sup>nd</sup> layer of shield against meteoroids and cosmic rays. Bag itself is 3<sup>rd</sup> layer defense and pressure sealed.

### Achieving 1-gravity artificially:

At radius 50 meters ( $d=2r$ ), 4.2 rotations/minute (14.2 secs/rotation).

At radius 100m ( $d=200$ ), 3 rotations/minute (every 20 sec)

### Ultra-low-mass Space Cylinder

