

In-Sight Publishing
Ask A Genius 167 – Spontaneous Symmetry Breaking (Part 2)
Scott Douglas Jacobsen & Rick Rosner
May 3, 2017

[Beginning of recorded material]

RR: Another way people put it is that it is a pencil on edge. You may be able to get a pencil to stand up, but it doesn't take much to push it over. Spontaneous symmetry breaking in the way it is used is that you need metastability, and in each of those cases those setups are symmetrical. In that, a marble on a sombrero is rotationally symmetrical, as is a pencil on edge, but then the symmetry breaks.

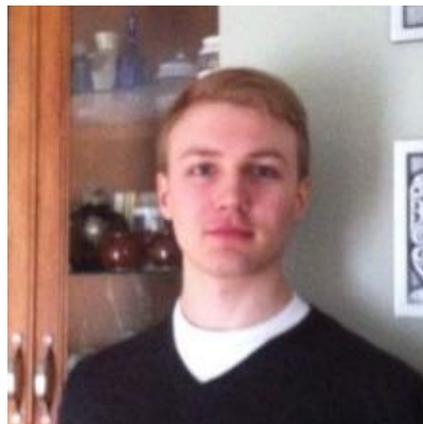
The pencil tips over. A marble rolls off the top of the sombrero into the lip of the sombrero. The pencil can't move in all directions at once. The sombrero marble can't move in all directions at once. It has to pick a direction. It is random, but when it happens then it happens in a particular direction. Now, your deal is no longer symmetrical. Now, your marble is at 1 o'clock or 8 o'clock or sombrero o'clock. A symmetry is broken and in the breaking of symmetry a bunch of energy is released.

All of the energy of the energy that the universe needs to expand into its current form, or much of the energy. So that's what I think spontaneous symmetry breaking is.

[End of recorded material]

Authors¹

Rick Rosner
American Television Writer
RickRosner@Hotmail.Com
Rick Rosner



Scott Douglas Jacobsen
Editor-in-Chief, In-Sight Publishing
Scott.D.Jacobsen@Gmail.Com
In-Sight Publishing

License and Copyright

License



In-Sight Publishing and *In-Sight: Independent Interview-Based Journal* by Scott Douglas Jacobsen is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

Based on a work at www.in-sightjournal.com.

Copyright

© Scott Douglas Jacobsen and Rick Rosner, and *In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal* 2012-2017. Unauthorized use and/or duplication of this material without express and written permission from this site's author and/or owner is strictly prohibited. Excerpts and links may be used, provided that full and clear credit is given to Scott Douglas Jacobsen and Rick Rosner, and *In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal* with appropriate and specific direction to the original content.

¹ Four format points for the session article:

1. Bold text following "Scott Douglas Jacobsen:" or "SDJ:" is Scott Douglas Jacobsen & non-bold text following "Rick Rosner:" or "RR:" is Rick Rosner.
2. Session article conducted, transcribed, edited, formatted, and published by Scott.
3. Footnotes & in-text citations in the interview & references after the interview.
4. This session article has been edited for clarity and readability.

For further information on the formatting guidelines incorporated into this document, please see the following documents:

1. American Psychological Association. (2010). Citation Guide: APA. Retrieved from <http://www.lib.sfu.ca/system/files/28281/APA6CitationGuideSFUv3.pdf>.
2. Humble, A. (n.d.). Guide to Transcribing. Retrieved from <http://www.msvu.ca/site/media/msvu/Transcription%20Guide.pdf>.