Collapsing bubbles may have given rise to life

The origin of life is a profound mystery. Once life arose, natural selection and evolution took over, but the question of how a mixture of various gases created life-giving molecules that arranged into structures capable of reproducing themselves remains unanswered.

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It is generally agreed that organic molecules were created when gases in the early Earth's atmosphere reacted. The trigger for these reactions is often attributed to lightning or meteorite impacts, but now a team of Israeli researchers has presented evidence that another widespread phenomenon could be responsible: Collapsing bubbles.

Bubbles are everywhere. Ocean waves, hydrothermal vents, rivers, and waterfalls create them. At the microscopic level, conditions inside collapsing bubbles can exhibit extreme temperatures and pressures of the sort necessary to trigger chemical reactions. Using this knowledge of what is called sonochemical synthesis, the authors created a computer model to determine what types of organic molecules could be synthesized inside collapsing bubbles.

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Obviously, fancy models are just that: Fancy models. Without more solid data from chemistry experiments, their results are still highly theoretical. Still, the authors have provided insights into a mechanism that was proposed over 60 years ago but never seriously investigated. With time, perhaps the mystery of abiogenesis eventually will be solved.

[Editor's note: Read the full study]

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: Sonochemical Synthesis: Did Life Originate Inside Collapsing Bubbles?