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●スマートフォンで宇宙線検出するプロジェクト

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高エネルギーの宇宙線を検出する機械は極めて高額で大規模に配置することが困難なため、この分野の研究は進んでいないが、実はスマートフォンに搭載されたセンサが高エネルギー宇宙線を検出することが可能。

これを利用して簡単なアプリをダウンロードしたスマートフォンを多数集めて、分散型の大規模宇宙線検出器を構築しようというプロジェクトが立ち上げられた。

「Cosmir RAYS Found In Smartphones (CRAYFIS)」と名付けられたこのプロジェクトは現在、参加してくれるスマートフォン所有者を募集している。

このような多数のボランティアに頼るプロジェクトは以前より「ボランティア・コンピューティング」として様々な活用されており、その草分けとなったメルセンヌ素数を探すプロジェクトは1996年より開始されている。2000年代に入ると「ボランティア・コンピューティング」の数は増え、資金不足に悩む研究プロジェクトを実行に移すための手段として普及している。

今回のプロジェクトは「ボランティア・コンピューティング」にスマートフォンという新たな要素を付け加えるものといえる。

(参考) 本件報道記事

YOUR SMARTPHONE CAN DETECT ULTRA-HIGH ENERGY COSMIC RAYS. HERE'S WHY THAT MATTERS

By Zach Wener-Fligner Quartz October 16, 2014

Smartphones let you do many things conveniently—check email, get directions, buy pizza. But chances are you've never realized that your smartphone can also detect very high-energy cosmic rays that hit the Earth from space.

A group of physicists did notice, and thought it was very convenient, indeed. That's because your smartphone—or, more accurately, one million smartphones spread across the globe—could be the key to observing these cosmic rays.

Ultra-high energy cosmic rays were discovered decades ago, but little is known

about them because building detectors has long been too expensive and difficult to do at scale. But the physicists knew that the sensors on smartphone cameras could detect the rays. In a recently-submitted paper, they described an approach for turning a bunch of smartphones into a huge, distributed cosmic-ray detector, all with the download of a simple app. When a smartphone detects a cosmic ray, it can share data with the researchers, allowing them to study the rays in more detail than ever before.

The project is known as CRAYFIS—Cosmir RAYS Found In Smartphones. You can sign up to participate in the project [here](#). Participants will be listed as co-authors of papers that result from the project.

CRAYFIS is a new take on the relatively old idea of “volunteer computing,” where ordinary people allow researchers to harness their personal computers to work on small parts of problems that require vast amounts of computation. The first volunteer computing project, which searches for a special type of prime number known as a “Mersenne prime,” began in 1996.

Volunteer computing exploded within the scientific community during the 2000s. It offered a way for underfunded research projects to access computing resources more comparable to that of a large organization flush with cash. It also allowed ordinary people to contribute to the advancement of all types of science, from mathematics to molecular biology to the search for extraterrestrial life.

CRAYFIS is based on the fact that every smartphone is not just a little computer, but also an array of sensors. In this case, those sensors are used to detect cosmic rays. But if the paradigm of volunteer computing continues to be applied towards smartphones, the scientific possibilities could be endless.

Source:

<http://www.nextgov.com/mobile/2014/10/your-smarthone-can-detect-ultra-high-energy-cosmic-rays-heres-why-matters/96665/?oref=ng-HPriver>

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