TED演讲者：Bur?in Mutlu-Pakdil | 布奇・穆特鲁-帕克迪

演讲标题：A rare galaxy that's challenging our understanding of the universe | 一个罕见的星系挑战了我们对宇宙的认知

内容概要：What's it like to discover a galaxy -- and have it named after you? Astrophysicist and TED Fellow Bur?in Mutlu-Pakdil lets us know in this quick talk about her team's surprising discovery of a mysterious new galaxy type.
发现一个新的星系并以你的名字命名它是一种什么感觉？天体物理学家和TED研究员布奇・穆特鲁-帕克迪，在这个简短的演讲中向我们介绍了她的团队令人惊喜的发现：一种神秘的全新的星系。

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There are more than a **trillion** galaxies in the universe.	宇宙中有超过一万亿个星系。[00:13]
And my team discovered an extremely rare one, a galaxy that doesn't look quite like anything **observed** before.	而我的团队发现了极其罕见的一个, 这个星系与我们见过的其他星系都不同。[00:17]
This galaxy is so **peculiar**, that it challenges our theories and our assumptions about how the universe works.	这个星系是如此的特别, 以至于动摇了我们对于 宇宙运行规律的理论和设想。[00:26]
The majority of the galaxies are **spiral**, **similar to** our own **Milky** Way.	大多数星系都是螺旋状的, 就像我们的银河系一样。[00:37]
We have strong theories about how these common galaxies form and evolve.	我们可以很好地解释这些 常见星系的起源和演化过程。[00:42]
But we don't understand how rare galaxies form and evolve.	但是我们并不理解其他 罕见星系的形成和演变过程。[00:48]
An especially **puzzling** rare case is Hoag's Object.	霍格星系就是这样的一个 令人费解而罕见的例子。[00:55]
It has a very **symmetric** central body surrounded by a circular outer ring, with nothing visible connecting them.	它由一个非常对称的中心天体 和环绕它的圆形外环组成, 而这两部分之间并没有 可见的物质连接它们。[01:00]
Hoag-type galaxies are among the **rarest** types of galaxies currently known.	霍格星系属于最罕见的星系类型之一。[01:10]

trillion: n.[数]万亿/adj.万亿的/num.[数]万亿 **observed:** adj.观察的;观测的/v.观察;遵守;注意到(observe的过去分词形式) **peculiar:** adj.特殊的；独特的；奇怪的；罕见的/n.特权；特有财产 **spiral:** n.螺旋;旋涡;螺旋形之物/adj.螺旋形的/vt.使成螺旋形/vi.盘旋;螺旋形上升 **similar to:** 与……相似;和……相同 **Milky:** adj.乳白色的;牛奶的;乳状的;柔和的;混浊不清的 **puzzling:** adj.使迷惑的;使莫名其妙的 **symmetric:** adj.对称的;匀称的 **rarest:** adj.最珍贵的(rare的最高级);最稀罕的

There are fewer than one in 1,000 galaxies.	他们只占星系总数的不到千分之一。[01:16]
It's a mystery how the stars in the outer ring are just floating there in such an orderly manner.	外环中的恒星如此整齐的 漂浮在那里的原因 依旧是一个谜。[01:21]
That's interesting, right?	非常有意思,对吧? [01:30]
Hold on.	别急。[01:32]
Things are about to get more **mysterious**.	还有更加神秘的事情。[01:34]
The galaxy that my team discovered is even **rarer** and much more complex than that.	我们团队所发现的星系比霍格星系 更加罕见,也更复杂。[01:37]
You know, sometimes, you search and search for these objects, and you find nothing.	有时,我们不停地寻找一些天体, 却什么也找不到。[01:44]
But sometimes, it just appears in the background, when you are not even looking for it.	但也有时候,它就会在你甚至 没有刻意找它的时候,出现在背景里。[01:50]
This system looks very similar to Hoag's Object, with its central body and circular outer ring.	这个星系与霍格星系非常相似, 也有中心天体和圆形的外环。[01:58]
We got very excited and thought we discovered another Hoag's Object.	我们当时非常激动, 以为又发现了一个霍格星系。[02:05]
But my research showed this is an entirely new galaxy type, now **commonly** referred to as "Bur?in's Galaxy."	但是我的研究表明, 这其实是一种全新的星系, 大家现在叫它 “” 布奇星系”。 （布奇是演讲者的名字）[02:10]
(Laughs)	（笑）[02:21]
(Cheers) (Applause) We will not be visiting this galaxy anytime soon.	（欢呼） （掌声） 我们要过很久才能探访这个星系。[02:22]

mysterious: adj.神秘的；不可思议的；难解的 **rarer:** adj.更稀罕的;更珍贵的(rare的比较级) **commonly:** adv.一般地;通常地;普通地

It is **approximately** 359 million light years away from Earth.	它与地球的距离大概有 三亿五千九百万光年。[02:31]
You may think this is far.	你可能觉得这很远。[02:38]
Well, actually, this is one of the nearby galaxies.	其实这个星系已经离我们相对很近了。[02:40]
I study this object in different light -- in **ultraviolet**, **optical** and **near-infrared**.	我对这个星系在不同的 电磁波长下的样子进行了研究—— 包括了紫外线,可见光,和近红外线。[02:45]

Small details on our body, like a **scar** or **wrinkles**, tell the story of our lives.	我们身体上的细微痕迹, 比如一个伤痕或者皱纹, 可以透露我们的生活经历。[02:53]
Similarly, a galaxy's structure in different light can help us **trace back** their origin and evolution.	同样的,星系结构 在不同电磁波长下的样子 也可以帮助我们回溯 它的起源和演变过程。[02:59]
How do I look for these details?	怎么寻找这些痕迹呢? [03:07]
I model the bright central body and remove my model from the image to check for any hidden features, because a bright structure in a galaxy may blind our views of faint features, just like using **sunglasses** when you are **blinded** by the **intense** light.	我建立了那个明亮的中心天体的模型, 并把这个模型从星系图像中移除, 然后就可以寻找星系的不明显的特征, 因为星系中明亮的部分 可能会遮盖一些暗淡的细节, 这就像我们在强光刺眼时会戴墨镜一样。[03:10]
approximately: adv.大约,近似地;近于 **ultraviolet:** adj.紫外的；紫外线的/n.紫外线辐射，紫外光 **optical:** adj.光学的；眼睛的，视觉的 **near-infrared:** 近红外 **scar:** vt.伤害;给留下伤痕/vi.结疤;痊愈/n.创伤;伤痕 **wrinkles:** n.皱纹;皱褶(wrinkle的复数形式)/v.起皱(wrinkle的第三人称单数形式) **trace back:** 追溯 **sunglasses:** n.太阳镜;凸透镜(sunglass的复数) **blinded:** adj.瞎的;不知情的;不合理的/v.使失明;使黑暗(blind的过去分词);使眼花缭乱 **intense:** adj.强烈的；紧张的；非常的；热情的	
The result was a big surprise.	研究的结果令我们非常惊喜。[03:30]
This galaxy doesn't just have an outer ring, it has an additional, **diffused** inner ring.	这个星系不仅有一个外环, 还有一个稀薄的内环。[03:33]
We were having a hard time explaining the origin of the outer ring in Hoag-type galaxies.	我们要解释霍格星系外环的形成过程 已经很困难了。[03:41]
Now we also need to explain this mysterious second ring.	现在我们还要解释这个神秘的内环。[03:48]
There is currently no known mechanism that can explain the existence of an inner ring in such a peculiar galaxy.	目前没有任何理论 可以解释这个如此特别的 星系中内环的存在。[03:53]
So the discovery of Bur?in's Galaxy clearly **highlights** the gap in our knowledge of galaxy evolution.	所以,布奇星系的发现凸显了我们的 星系演化理论的不足。[04:01]
Further research into how this extremely rare galaxy was formed can provide us with new clues on how the universe works.	对这个及其罕见星系 形成过程的后续研究, 可以为我们理解宇宙的 运行机制提供新的线索。[04:09]
This discovery tells us that we still have a lot to learn, and we should keep looking deeper and deeper in space and keep searching for the unknown.	这个发现表明我们还有很长的路要走, 我们应该继续对太空进行更深入的研究, 并继续探索未知的现象。[04:21]
Thank you.	谢谢。[04:32]
(Applause)	（掌声）[04:33]
diffused: adj.散布的,扩散的;普及的/v.散布,传播(diffuse的过去分词);使分散 **highlights:** n.拔萃,集锦;挑染(highlight的复数形式)/v.使突出(highlight的三单形式);强调	