What does it mean that the reflection point of point light source on the mirror can be seen in all directions under the condition of near total reflection?？

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[Abstract]: I did two optical experiments a week ago and wrote two articles: A simple experimental device to verify the nature of light and the analysis of experimental results, and the imaging experiment of point light source under the condition of total reflection and the analysis of its results. The experimental results all prove that the human eye sees a substance (luminous body) composed of atoms that is emitting light (vibrating at the frequency of visible light), rather than the so-called light itself. This experiment further verified this conclusion. I hope that qualified teachers and friends can further verify the nature of light and find out what the human eye sees on this basis.

First, the introduction of experimental equipment and steps

1、Experimental apparatus

1.1、Laser pen: a laser pen that can generate a red point light source.

1.2、Flat mirror: one ordinary flat mirror of 130mm*200mm.

2、Experimental procedure

2.1、Suspend the laser pen directly above the plane mirror about 250mm, and the plane mirror will be flat on the ground (reaching or approaching the condition of vertical incidence, and the incident angle is 0 degrees).

2.2、Turn on the switch of the laser pointer and make the red light spot generated by it fall in the middle of the plane mirror.

2.3、Taking pictures from different angles and directions, the shooting object is mainly the reflective point on the plane mirror.

2.4、Place the flat mirror on the ground at an angle of about 50 degrees from the ground (with an incident angle of about 50 degrees), and then repeat step 2.3.

2.5、Place the flat mirror on the ground at an angle of about 85 degrees from the ground (with an incident angle of about 85 degrees), and then repeat step 2.3.

Secondly, experimental results

For the convenience of discussing the experimental results, we will rotate all photos 90 degrees to the left, so that the laser pointer is located on the left side of the photo and the reflective point on the flat mirror is located on the right or middle side.

1、Photos in multiple directions and orientations at an incident angle of 0 degrees

Photo Group 1: Multi directional and multi-directional photos under vertical incidence angles in both outdoor and indoor scenarios

2、Photos taken in multiple directions and orientations at an incident angle of 50 degrees

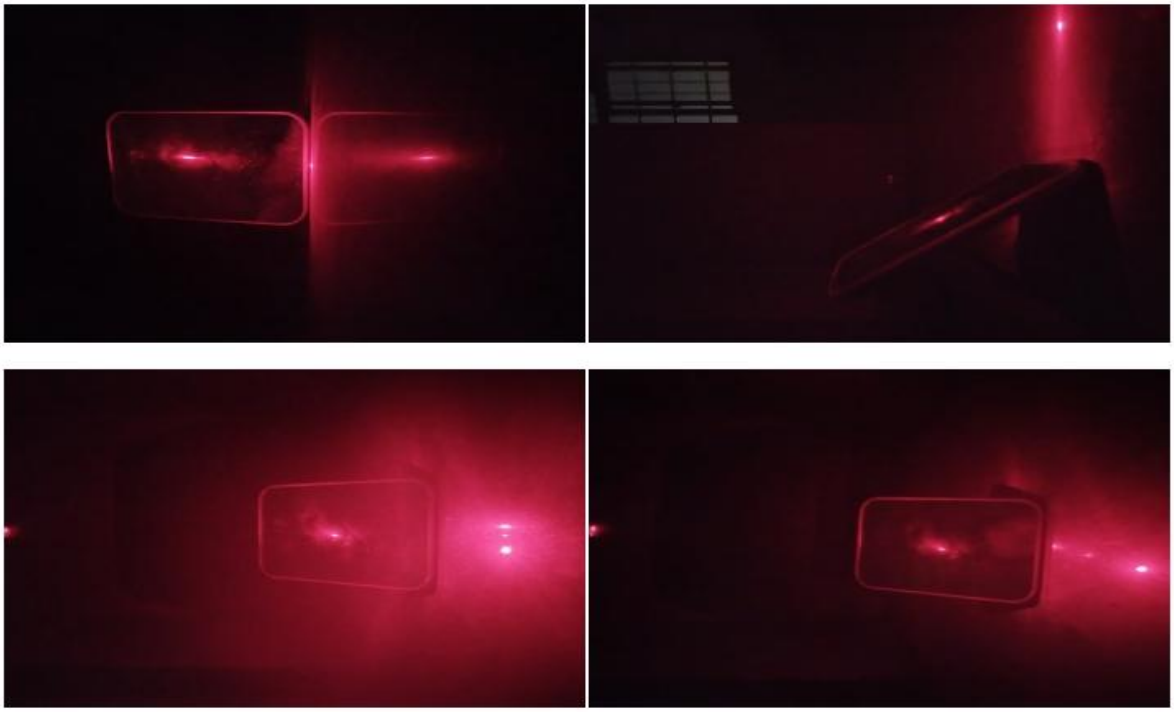
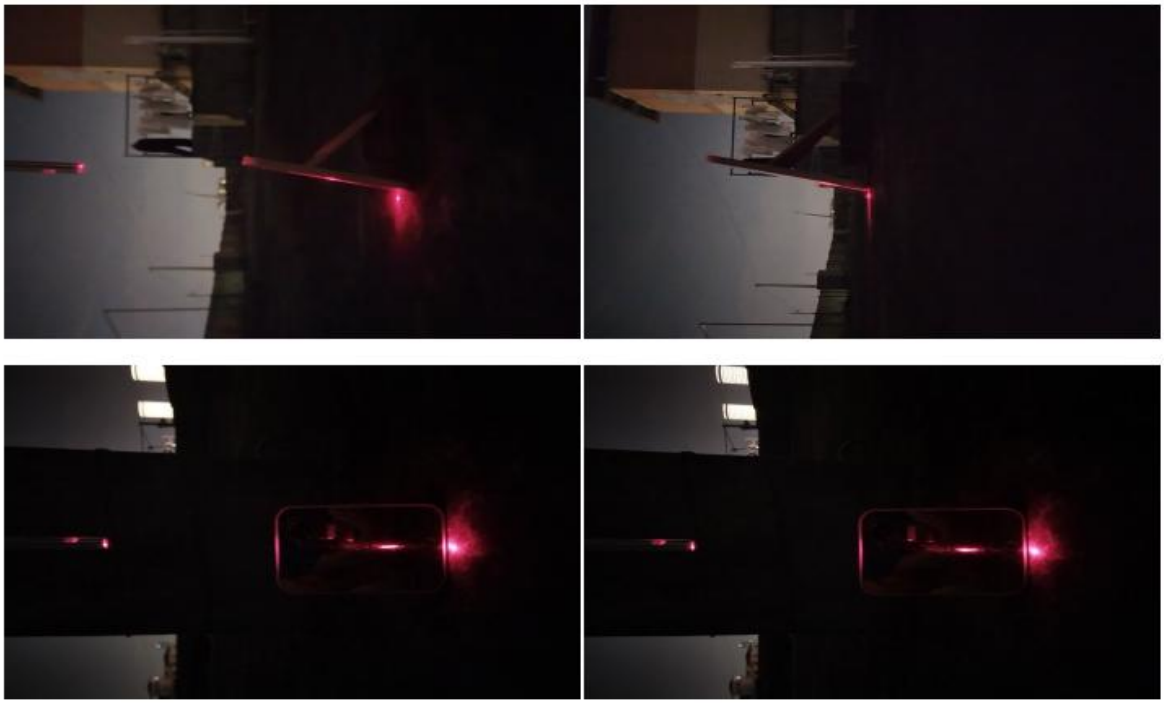


Photo Group 2: Multi directional and multi-directional photos with a 50 degree incidence angle in both outdoor and indoor scenarios

3、Photos taken in multiple directions and orientations at an incident angle of 85 degrees



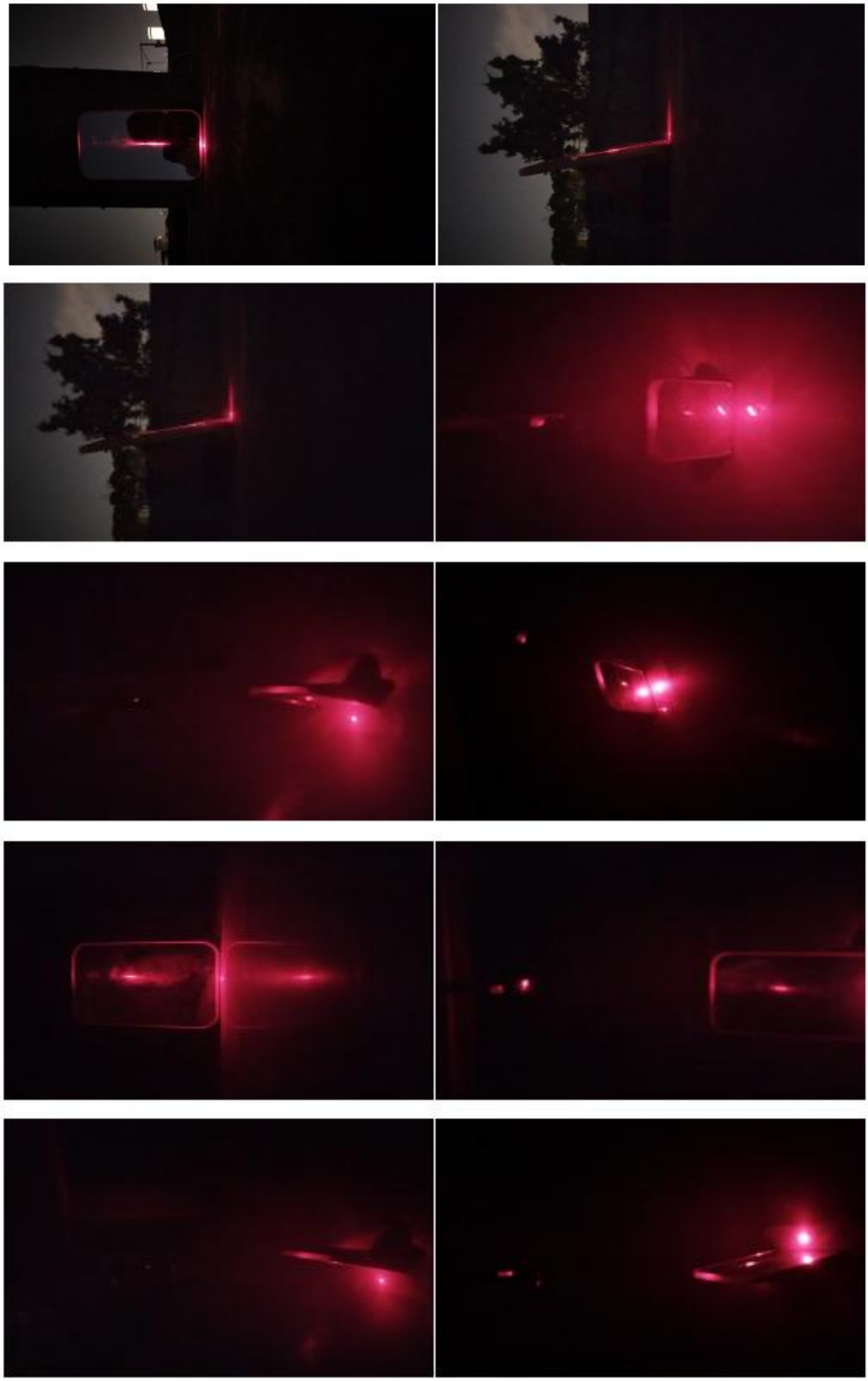


Photo Group 3: Multi directional and multi-directional photos with an 85 degree incidence angle in both outdoor and indoor scenarios

Thirdly, a brief analysis of the experimental results

Through careful analysis of photos taken from different orientations and angles at three different input and reflection angles, it was found that there are two abnormal situations：

1、The brightness of the bright spot at the reflective point of the flat mirror is basically the same in photos taken from different orientations and angles；

2、When the incident angle is 85 degrees, the bright spot at the reflection point of the plane mirror is still visible in the photo on the left side of the laser pen (actually above the laser pen), and the brightness is basically the same as in other directions and orientations (see the last two photos in photo group three for details).

The above two abnormal situations cannot be explained by whether light is photons or/and electromagnetic waves. Because if light is photons or/and electromagnetic waves, then when the incident angle is 85 degrees, the reflection angle should also be 85 degrees, which means the angle between the incident and reflection directions is 170 degrees, and the reflected light cannot be transmitted towards the direction of the laser pen. On the one hand, because the reflection coefficient of ordinary flat mirrors is above 90%, when the incident angle reaches 85 degrees, it can be considered to be in a state close to total reflection. Therefore, even so-called diffuse reflection should not have such a large reflection angle (up to 170 degrees from the reflection direction). On the other hand, the intensity of reflected or diffused light should also vary with the direction and orientation of reflection, and it is impossible not to change with the direction and orientation of reflection/diffuse reflection. Furthermore, the so-called speed of light transmission reaches tens of kilometers per second, and it is impossible for the human eye to see objects moving at such high speeds.

In summary, only when what is seen by the human eye/captured by a camera is not the so-called light, but a substance composed of atoms that is emitting light - a luminous body - can it be fully explained. Because only in this way can the bright spot at the reflection point with the same brightness be seen in any visible direction and orientation → the glowing mirror surface.

Therefore, the results of this experiment have fully demonstrated that what the human eye sees is a substance that is emitting light, not the so-called light. From this, it can be concluded that the essence of light is the vector superposition of Coulomb force generated by substances composed of atoms as the basic unit. When its intensity changes frequency within the visible light range, it will interact with atoms in the retina of the human eye and form a visual effect, thus being seen by people.

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Due to my lack of English ability, the Chinese to English translation was achieved through common software. Therefore, the English version is likely to have more inaccurate and not easily understood parts. In order to facilitate the review of the manuscript by experts, the original Chinese version is attached. Please accept my apologies for any inconvenience.

近全反射情况下镜面上点光源反射点各向可见说明了什么？

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[文章摘要]：本人在一周前做了两个光学实验并写了《一个简单验证光的本质的实验装置及实验结果分析》和《全反射条件下的点光源成像实验及其结果分析》两篇文章，得出的实验结果均证明：人眼看到的是正在发光（以可见光频率振动）的、由原子组成的物质（发光体），而非所谓的光本身。本实验进一步验证了此一结论。希望有条件的老师和朋友们在此基础上进一步验证光的本质和查明人眼看到的到底是什么。

一、实验器材和实验步骤简介

1、实验器材

1.1、激光笔：可产生红色点光源的激光笔一支。

1.2、平面镜：130mm*200mm 的普通平面镜一块。

2、实验步骤

2.1、将激光笔充悬挂在离平面镜约 250mm 的正上方，平面镜平放至地面（达到或接近垂直入射的条件，入射角为 0 度）。

2.2、打开激光笔开关，并使其产生的红色光点落在平面镜的中部。

2.3、从不同角度和方位进行拍照，拍摄对象主要是平面镜上的反光点。

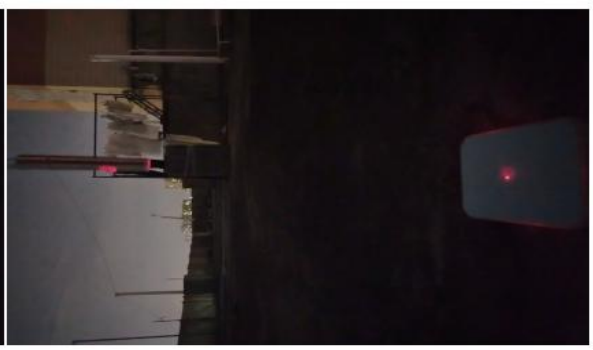
2.4、将平面镜以与地面 50 度左右的夹角放置在地面（入射角约为 50 度），然后重复 2.3 步的操作。

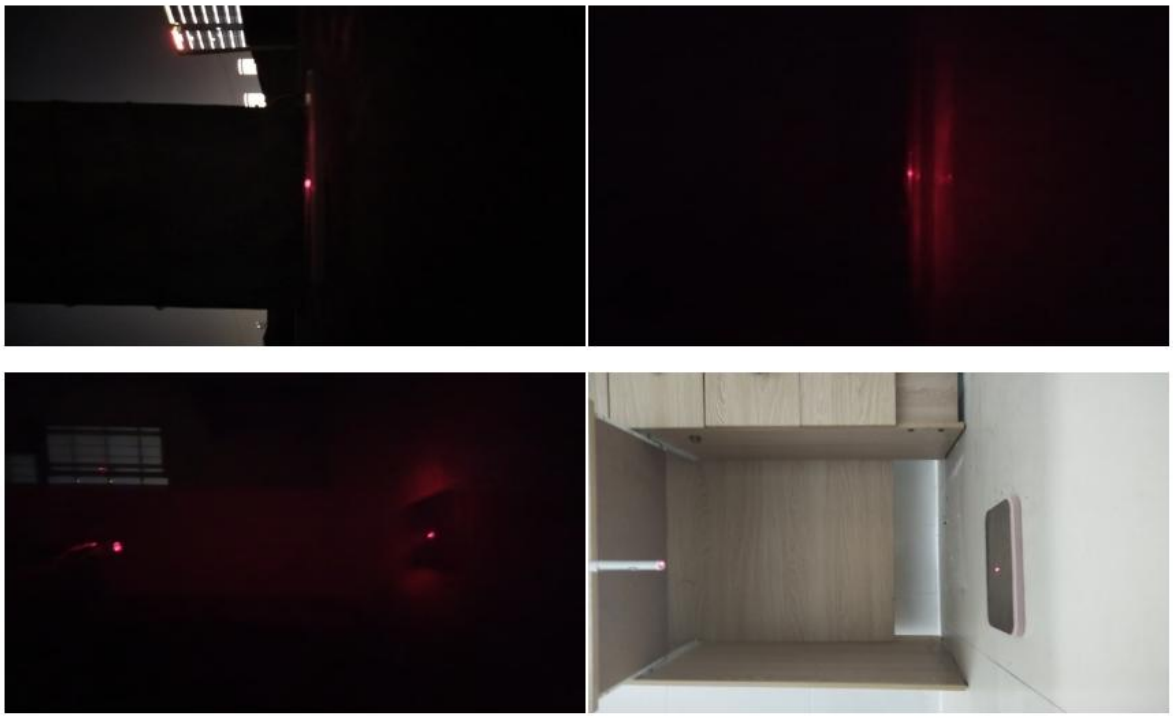
2.5、将平面镜以与地面 85 度左右的夹角放置在地面（入射角约为 85 度），然后重复 2.3 步的操作。

二、实验结果

为方便对实验结果的讨论，我们将所有照片左旋 90 度，以使激光笔位于照片的左侧，平面镜上的反光点位于右侧或中部。

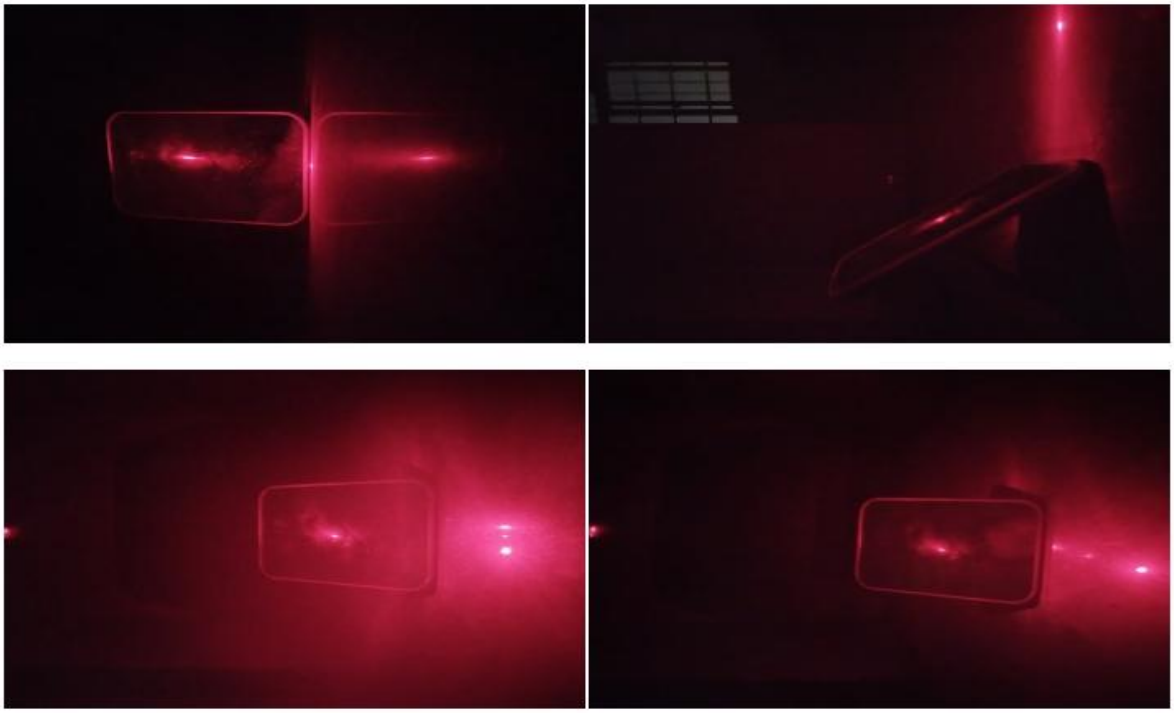
1、入射角为 0 度时的多方向和方位上的照片





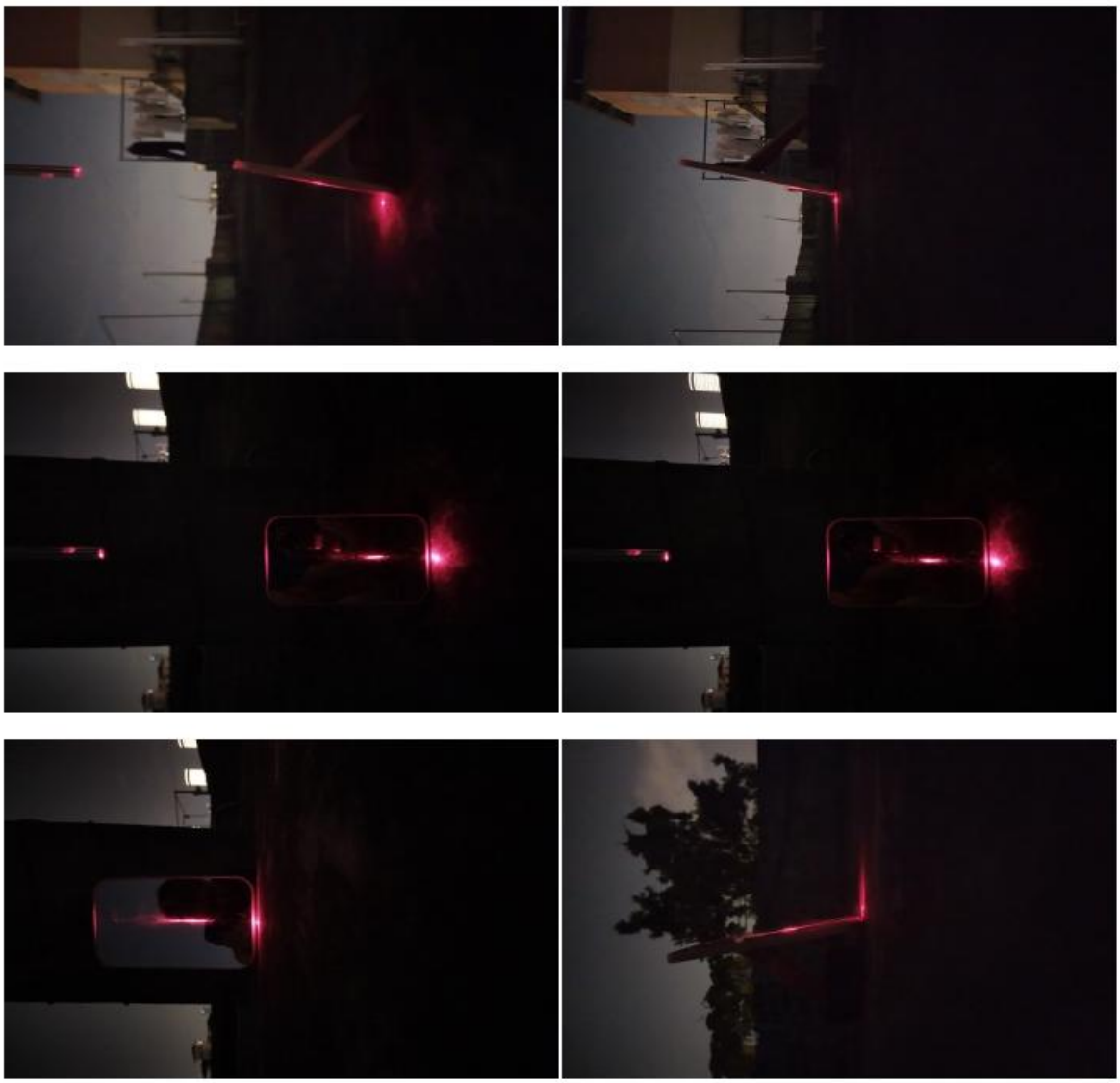
照片组一：室外与室内二种场景下垂直入射角时多方向和多方位照片

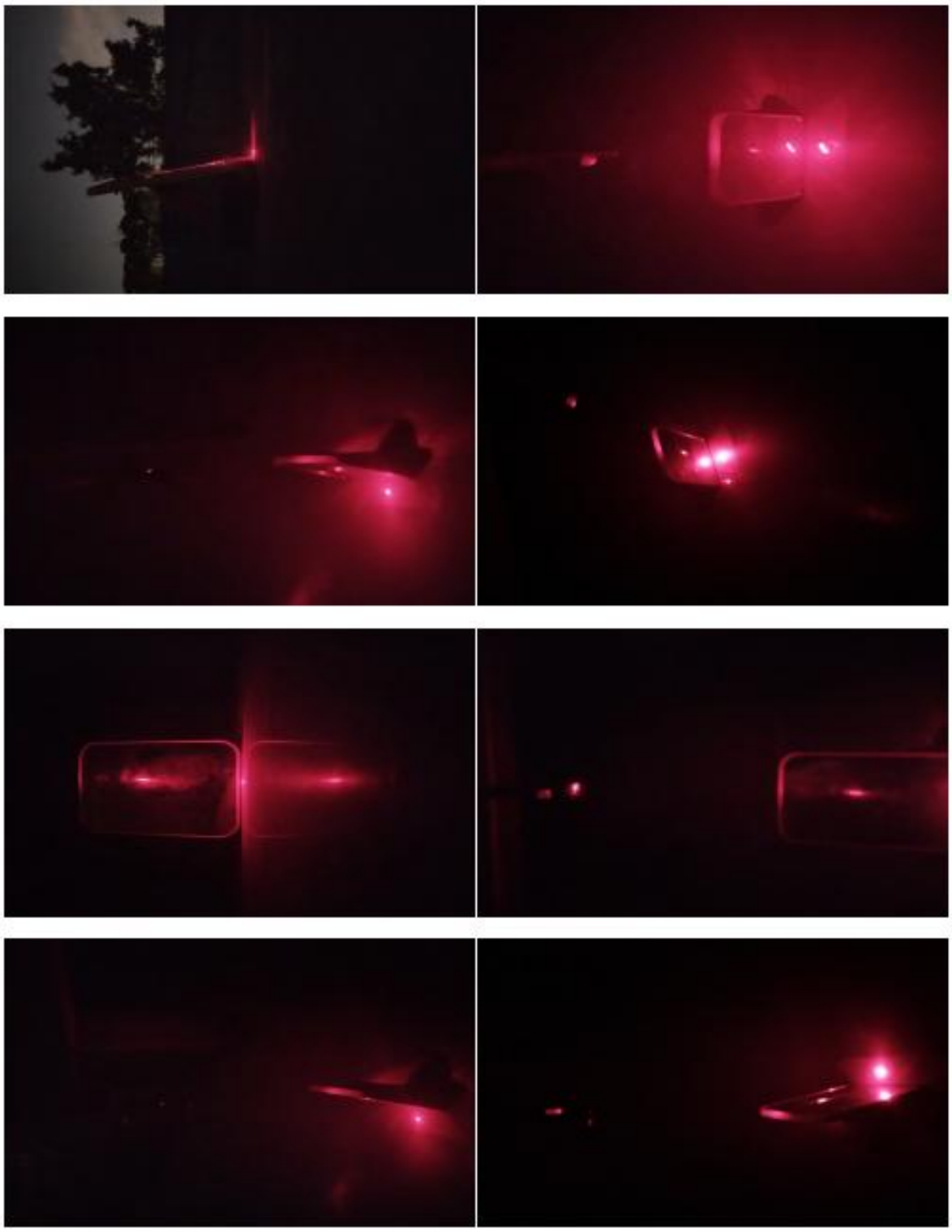
2、入射角为 **50** 度时的多方向和方位上的照片



照片组二：室外与室内二种场景下 **50** 度入射角多方向和多方位照片

3、入射角为 **85** 度时的多方向和方位上的照片





照片组三：室外与室内二种场景下 85 度入射角多方向和多方位照片

三、实验结果简单分析

通过对三种入、反射角时不同方位和角度的照片的仔细分析，发现存在以下两种异常情况：

3、平面镜反光点处的亮点的亮度在不同方位和角度的照片上基本相同；

4、在入射角为 85 度时，在激光笔左侧（实际为激光笔的上方）的照片上，平面镜反射点处的亮点依然可见，且亮度与其他方位和方向上的基本一致（详见照片组三中的最后两张照片）。

以上两种异常情况是用光是光子或/和电磁波都无法解释的。因为，如果光是光子或/和电磁波，则当入射角为 85 度时，其反射角也应该是 85 度，也就是入射与反射方向的夹角为 170 度，反射光不可能朝激光笔方向传递。一方面，因为普通平面镜的反射系数在 90%以上，当入射角达 85 度时，可以视为接近全反射状态。因此，即使是所谓的漫反射也不应该有如此大的反射角（与反射方向的夹角达 170 度）。另一方面，反射或漫反射光的强度也应随反射方向和方位的变化而变化，不可能不随反射/漫反射的方向与方位变化。再者，所谓的光的传递速度达每秒数十千米，人眼是不可能看到如此之高运动速度的的运动对象的。

综上所述，只有用人眼看到的/相机拍摄到的不是所谓的光，而是正在发光的、由原子组成的物质→发光体才能圆满地解释之。因为，只有这样才会在任意可视的方位和方向上看到同样亮度的反射点处的亮斑→正在发光的镜面。

因此，本实验结果已充分证明：人眼看到的是正在发光的物质，而非所谓的光。由此可以得出：光的本质是以原子为基本单位组成的物质产生的库仑力的矢量叠加结果，当其强度变化频率在可见光波段范围内时，就会与人眼视网膜中的原子产生相互作用并形成视觉效应，从而被人们看到。

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