

## **Mental interaction at distance on a Photomultiplier: a pilot study.**

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## Abstract

With this pilot exploratory study we aimed at investigating if focused mental intention by selected participants could increase in the level of photons detected by a photomultiplier located in a very distant location with respect to the control conditions.

Five participants selected for their long experience with hypnosis and mental control practices and their strong motivation toward this line of research, tried to increase the rate of photons detected by a photomultiplier located approximately 7330 km far from their location, both when in an Out of Body state of consciousness induced by an hypnotic suggestion and when in a normal state of consciousness.

The comparison of ten experimental sessions with two types of ten control sessions revealed an average increase of approximately 20 photons per minute during the experimental sessions.

These preliminary results suggest that the physical carrier of the mental interaction at distance can be the biophotons.

**Keywords:** mental interaction at distance; biophotons; OBE; photomultiplier.

## Introduction

Preliminary evidence by Caswell, Dotta and Persinger (2014) and Joines, Baumann and Kruth (2012), suggest that human focused intention triggers biophotons emission that could represent the carrier of the interaction with electronic apparatuses.

Our exploratory hypothesis was that during an OBE or a focused mental intention, we should observe an increase in the biophotons detection with respect to the control conditions.

Out of Body experiences induced by hypnosis offer an almost unique opportunity to investigate this particular state of consciousness for long periods and hence to discover all its characteristics. The only drawback is the availability of very selected participants and of experienced hypnotists.

In two companion papers, Tressoldi et al. (submitted; 2014) explored different aspects of the personal selfhood and of perceptual and cognitive characteristics experienced by five selected participants induced in OBE by hypnotic induction using a classical first-person phenomenological procedure.

Among the main experiences reported by all participants, there was a sense of disembodied Self or I-identity we defined as disembodied personal selfhood (DPS), which main characteristics are the capacity to move and perceive in a sort of three-dimensional universe without the time dimension. Movement and perception seem regulated only by the intentional will and goals of participant and got realized instantaneously.

No effects of the interaction with the physical environment, i.e. walls, are reported.

In this study we aimed at investigating if this DPS can be detected or can interact with physical devices, in short, if mind activity in OBE can interact with matter at distance.

In this pilot study we used Photomultiplier (PMT) as the detector of mind-matter interaction. This device (see technical description in the Method section), allows to investigate whether photons can be the physical correlates of mind interaction at distance.

## Method

### Participants

Five participants and the hypnotist who took part in the Tressoldi et al. (submitted) study were included.

They were included given their experience, ranging from 1 to 20 years, with hypnosis and mental control practices, mainly meditation and their strong commitment toward this line of research.

Their demographical and general characteristics are reported in Table 1. The degree of hypnotic suggestibility was estimated using the Italian version of the Harvard Group Scale of Hypnotic Susceptibility, Form A (Pascalis, Russo and Marucci, 2000).

Author LP acted as hypnotist. His experience with hypnotic is lasting more than 20 years.

Table 1: Characteristics of participants

ID	SEX	Age	Previous OBE experience	Previous OBE knowledge	Hypnosis experience (years)	Hypnotic Susceptibility
S	M	26	NO	High	2	8
Al	M	30	NO	High	2	8
F	F	53	YES	High	10	9
L	M	67	YES	High	20	9
P	M	43	NO	High	1	6

### Procedure and Apparatus

The Photomultiplier (PMT) was placed in the Bioenergy Lab of the Rhine Research Center, in Durham, NC, USA and was managed by the co-author JK. PMT (type 56 DVP) with PMT housing (Pacific Photometric Instruments Model 62/2F - thermoelectrically cooled to near -23 degrees C) is able to measure 2 photons per second in the 400 to 200 nm wavelength range. Signals from the PMT are amplified by a Pacific Photometric 3A14 amplifier, and photons are counted by a photon counter (Thorn EMI GenCom model C-10) every half second. This information is transferred to a computer in the external darkroom and the number of photons detected is recorded every half second for the duration of an experimental session. The PMT detects the photons directly and converts the readings into a digital format.

#### Procedure

Participants agreed with the co-author JK the day and the time to start and end each session. In the agreed day, JK activated the PMT and the participants started their mental interaction. After some pilot trials, the duration of the mental interaction was defined in twenty minutes. However post-hoc observations during and after the experimental sessions, suggested to consider only the first five minutes. The main reasons were a reported boredom and fatigue of participants to sustain a prolonged mental interaction.

The procedures to induce an OBE with hypnotic induction were the same described in Tressoldi et al. (submitted). Briefly, after a classical hypnotic induction, when the hypnotist was satisfied with the hypnotic deep, he started the OBE induction. When the hypnotist got the confirmation by the participant that this state was obtained, he started the instructions related to the mind-matter interaction.

All sessions were carried out in a single place, a sound and visual attenuated room in the EvanLab, laboratory located in Florence, Italy. Participants to be induced in OBE were accommodated in a reclined sofa and a digital voice recorder was placed close to their mouth to record all their verbal statements.

From February to June 2014, a total of ten experimental sessions and ten control sessions lasting one hour recorded apart, were recorded. As a second control conditions, within each experimental sessions, ten periods out of the mental interaction phase were recorded as baseline.

The efficacy of mental interaction in OBE was compared with a classical mental interaction in normal state of consciousness. In five experimental sessions, the interaction with the PMT was fostered with participants in OBE whereas, in the remaining five sessions, participants were in a normal state of consciousness.

Before the beginning of the session all participants saw some images of the Rhine Research Center, the Bioenergy Lab and of the PMT to have a representation of the site and the apparatus to be influenced. The instructions to influence the PMT while in OBE, were to enter within the PMT and trying to emit light feeling completely at ease, protected from external disturbances.

The instructions to influence the PMTs while in the normal state of consciousness was imagining to enter within the PMT and trying to emit light feeling completely at ease, protected from external disturbances.

As a further control of the effects of the mental interaction on the PMT, in the last five sessions, a further period of interaction was added with the shutter of the PMT closed. With this control we could observe if the expected interaction with the PMT was at the level of biophotons or at the level of the electronic components that get triggered by the biophotons detection.

The dependent variables were the mean and the standard deviation of the PMT detection rate. Furthermore we compared the detection of spikes above twenty photons x second because they could be a marker of the mental interaction as suggested by Joines, Baumann and Kruth (2012).

## **Results**

### **Preliminary data controls**

The observation of the PMT photons detection rate during the control sessions revealed an almost linear decrement of the average detection rate which stabilized approximately after 20 minutes of functioning (see graphs in the Appendix). Hence it was decided to exclude the data of the first 20 minutes of sessions.

The results of the mental interaction observed in the OBE and normal state of consciousness were almost similar (see raw data in the Appendix). Consequently, we considered both the data recorded with participants in OBE and in normal state of consciousness in the experimental session.

### **PMT detection rate**

In the Figures 1a, 1b, and 1c, we report the comparisons among the controls and the experimental sessions, respectively for the spikes above 10 x seconds, the means and the standard deviations both when the PMT shutter was open and when it was closed. Raw data are reported in the Appendix.

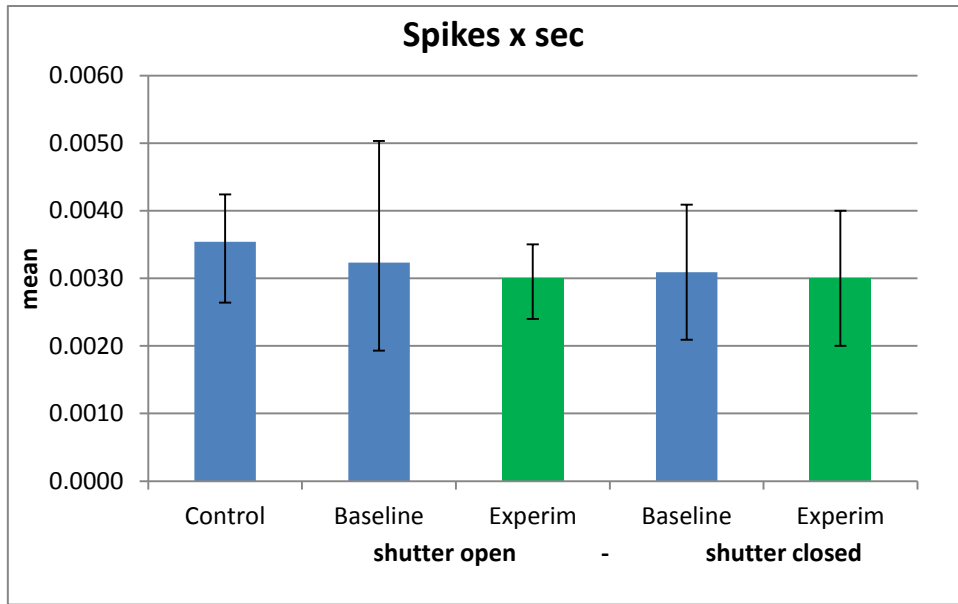


Figure 1a: Means with corresponding 95% confidence intervals<sup>1</sup> of the spikes above 10 x second related to the different baseline and experimental conditions.

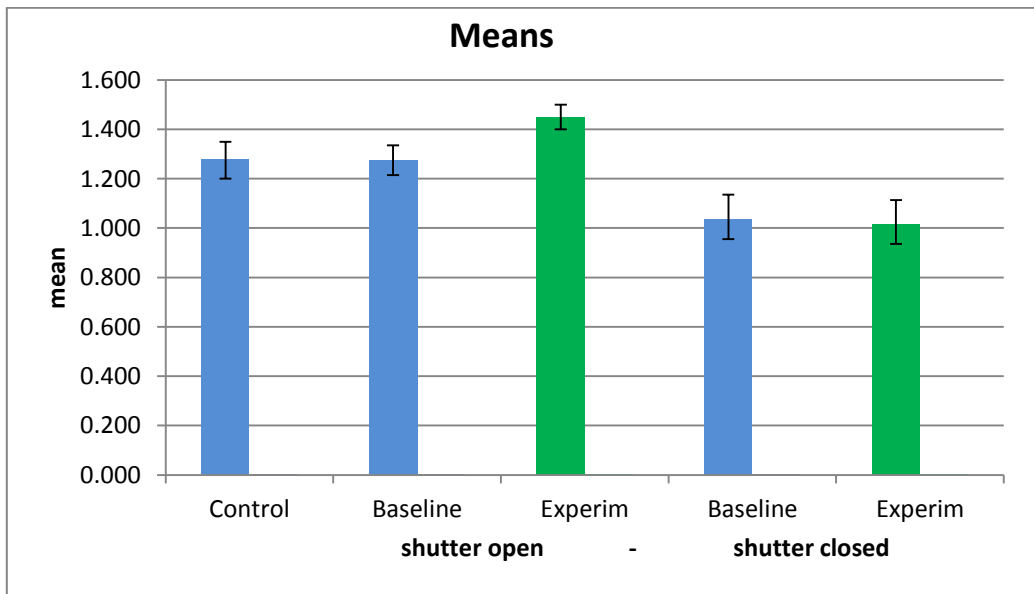


Figure 1b: Means with corresponding 95% confidence intervals of the means related to the different baseline and experimental conditions.

<sup>1</sup> Obtained from 5000 samples with a bootstrap procedure

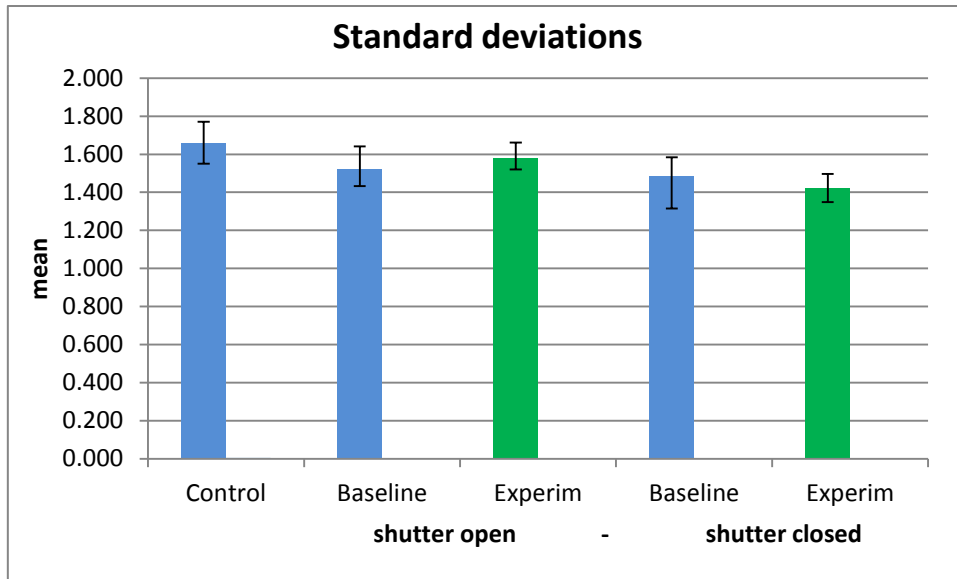


Figure 1c: Means with corresponding 95% confidence intervals of the standard deviations related to the different baseline and experimental conditions.

From the inspection of the three figures it emerges only a clear difference among the mean of biophotons recorded in the experimental session with the two baseline sessions when the shutter was open. When the shutter was closed the data recorded by the PMT were very similar, confirming that the mental interaction effect acted at the level of photons and not at the level of the electronic components.

A statistical comparison among the mean of photons detected in the experimental sessions with both the control and the baseline sessions are reported in Table 2.

Table 2: Paired t-test, standardized effect size  $d$  (ES) with corresponding 95% confidence intervals and Bayes Factor<sup>2</sup> ( $BF_{H1/H0}$ ) of the comparison of the experimental vs the control and the baseline sessions.

Comparison	Paired t-test	ES (95% CI)	$BF_{H1/H0}$
Experimental vs Control	3.5	1.63(0.65,2.58)	6.2
Experimental vs Baseline	4.6	1.87(0.80,2.90)	20.3

The statistical analyses confirm the differences observed in the Figure 1b. Both the measure of  $ES$  and the  $BF$  confirm that these differences are quite relevant.

### Discussion

The main hypothesis of whether a DPS induced by an hypnotic suggestion and/or a human focused intention could represents the carrier of the interaction with electronic apparatuses seems to be supported by our results with no apparent differences between the two conditions (see raw data).

<sup>2</sup> Calculated with the BayesFactor software (Morey and Rouder, 2014).

Participants located approximately 7.330 km far from the PMT seem able to increase the number of photons detected by a PMT, both with a mental interaction in a state of OBE and in a normal state of consciousness. We remind that the participants of this study were selected for their experience with hypnosis and mental control and their strong motivation towards this line of investigation.

In raw absolute term, during the distant mental interaction, the PMT recorded approximately 20 photons per minute above the level recorded in the control and baseline sessions. If these small variations reflect a real detection of biophotons or an influence of quantum processes affecting the operation of the PMT, remains an open question to be investigated in the future experiments.

Similar results were obtained by Joines et al. (2012) and Caswell et al. (2014), but in both cases participants were located in the same room of the PMT. In this sense, this pilot study represents one of the first demonstrations that human mental interaction with electronic devices is possible at very far distance. Tressoldi, et al. (2014) have demonstrated the possibility to modify the output of an electronic random event generator by a mental interaction at very far distances, however, this pilot study is the first demonstration that the carriers of this mental interaction at distance are biophotons. If confirmed by a pre-registered confirmatory experiment and by independent replications, the findings observed in the present study could represent an important step toward the identification of the physical carrier of the mental interaction at distance. At present, the candidates are the biophotons, even if much needs to be investigated to understand their differences from the non-biological photons and how they function during the mental interaction at distance.

This line of research can also have practical application in all cases where it can be useful to increase the level of photons to be delivered to biological targets, e.g. seeds, human physiology, etc.



## References

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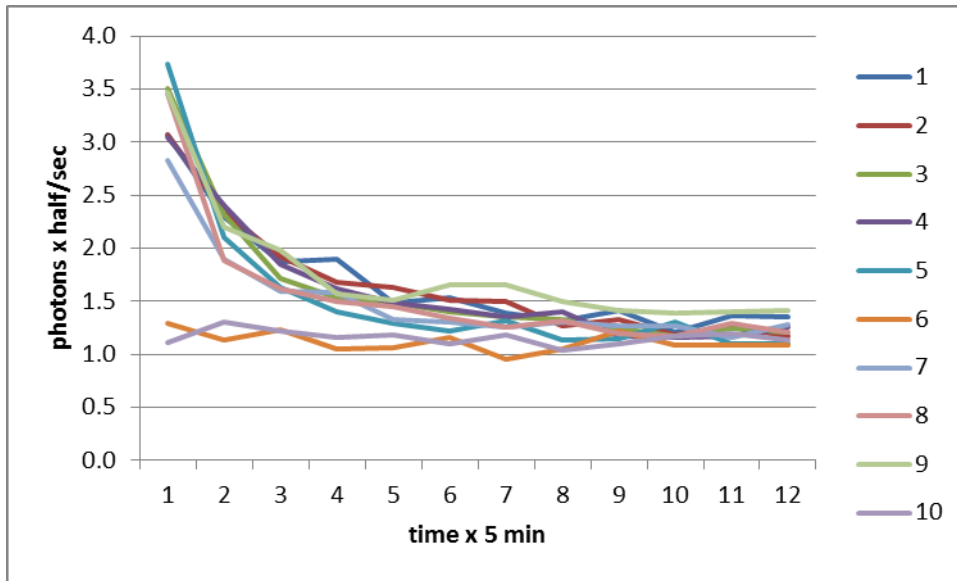
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## Appendix

Trend of the PMT photons detection rate during the control sessions



## Raw data

### Shutter open

day	Spikes x Sec		Control	Mean		SD	
	Baseline	Exper		Baseline	Exper	Baseline	Exper
21/02/2014*	0.0017	0.0033	1.383	1.135	<b>1.478</b>	1.436	1.578
22/02/2014	0.0078	0.0000	1.353	1.315	<b>1.518</b>	1.571	1.549
07/03/2014	0.0000	0.0067	1.302	1.111	<b>1.485</b>	1.253	1.644
08/03/2014	0.0017	0.0067	1.302	1.360	<b>1.528</b>	1.528	1.752
29/03/2014	0.0015	0.0000	1.200	1.213	<b>1.295</b>	1.453	1.532
03/05/2014	0.0017	0.0033	1.087	1.431	<b>1.468</b>	1.620	1.505
18/05/2014	0.0051	0.0067	1.271	1.254	<b>1.419</b>	1.602	1.767
08/06/2014	0.0024	0.0000	1.274	1.301	<b>1.336</b>	1.508	1.389
16/06/2014	0.0063	0.0033	1.491	1.306	<b>1.399</b>	1.636	1.558
20/06/2014	0.0042	0.0000	1.135	1.325	<b>1.572</b>	1.614	1.534

\*OBE

### Shutter closed

day	Spikes x Sec		Mean		SD	
	Baseline	Exper	Baseline	Exper	Baseline	Exper
03/05/2014	0.0017	0.0033	1.001	1.057	1.380	1.389
18/05/2014	0.0025	0.0050	1.141	1.200	1.467	1.543
08/06/2014	0.0033	0.0017	1.001	0.944	1.413	1.423
16/06/2014	0.0013	0.0042	0.964	0.970	1.367	1.448
20/06/2014	0.0038	0.0008	0.981	0.910	1.437	1.291

## Appendix

### Image of the PMT

