

# Scientists analyse global Twitter gossip around Higgs boson discovery

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A model of the spread of gossip on Twitter prior to the Higgs boson discovery announcement has been developed by University of Birmingham computer scientists, according to research published in the journal *Nature Scientific Reports* today (18 October 2013).

For the first time scientists have been able to analyse the dynamics of social media on a global scale before, during and after the announcement of a major scientific discovery.

According to the analysed data, the rumours that the Higgs boson had been discovered started around 1st July 2012, one day before the announcement at Tevatron, and three days before the official announcement from CERN on 4th July. The research shows that rumours started to spread on Twitter firstly in the USA, UK, Spain, Canada, Australia, as well as Italy, France, Switzerland and Germany, all countries with strong scientific connections to the experiments at the LHC.

*'Social media is the manifestation of the real conversation that is going on, perhaps, in this case, when the rumours started, between scientific colleagues and researchers,'* said Dr Mirco Musolesi lead investigator from the University of Birmingham's School of Computer Science. *'This is the first time we have had a scientific discovery of this magnitude during the age of global social media. The model that we have developed to monitor social media can be applied to any event on Twitter. We can therefore understand the dynamics of the event and can predict, in a given time period, the future evolution of the event.'*

Other researchers on the project are also interested in how information spreads on social media and how messages can be placed and controlled. *'If you can understand the dynamics of an event, you can try to control it, and keep the interest in the topic going. It is not only about observations, but also about forecasting and control of future information spreading,'* added Dr Manlio De Domenico.

*'This is really useful for practical applications such as marketing,'* said Mr Antonio Lima, a PhD student also working on this project. *'For example if you want to run a global marketing campaign you can identify key people on social media to help you to spread your message. Once you have identified these key advocates, you can change and steer the message in a different direction, potentially modifying opinions of millions of people. Indeed, this becomes a powerful tool for influencing people's behaviour at global scale.'*

Ends

Notes to Editors

1. Another collaborator of the project was Mr. Paul Mougel.
2. Videos of the rumours spreading can be viewed at <http://www.youtube.com/watch?v=QSQQ5vUndB4> (<http://www.youtube.com/watch?v=QSQQ5vUndB4>).

3. Statistical information regarding the study

Number of tweets before the announcement on 4th July:

21731 USA  
 9496 UK  
 6872 Spain  
 2838 Canada  
 2609 Australia  
 2402 Italia  
 2071 Mexico  
 2030 Japan  
 1821 France  
 1812 Brasil  
 1807 India  
 1210 Nederland  
 1133 Deutschland  
 923 Switzerland  
 898 Chile  
 868 Ireland  
 643 Venezuela  
 641 Turkey  
 584 Indonesia  
 560 Sweden

Number of tweets during the whole timeline:

133700 USA  
 98242 UK  
 66645 Spain  
 28907 Brasil  
 25244 Mexico  
 22536 Canada  
 19429 India  
 19318 Australia  
 17329 Italy  
 16221 France  
 14880 Turkey  
 11749 Nederland  
 11143 Germany  
 10643 Japan  
 9503 Chile  
 7954 Ireland  
 6154 Venezuela  
 5588 Argentina  
 5202 Colombia  
 4888 Switzerland

Top 50 most retweeted authors of tweets:

@CERN 21858  
 @ColinEberhardt 7144  
 @ProfBrianCox 7032  
 @newschemist 7031  
 @BadAstronomer 3392  
 @PiadasNerds 2558  
 @muyinteresante 2551  
 @NatureNews 2337  
 @tomscott 2277  
 @guardianscience 2210  
 @neiltyson 2071  
 @el pais 2050  
 @cuneytozdemir 2024  
 @publico es 1962  
 @marcuschow 1955  
 @daraobriain 1869  
 @HAL9000 1823  
 @microsiervos 1794  
 @johanknorberg 1781  
 @cnnbrk 1727  
 @sciam 1470  
 @CMSexperiment 1389  
 @enrique ganem 1312

