Rumours abound: 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 on the online repository, ArXiv.

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**
3. The paper is available at the ArXiv website at **http://arxiv.org/abs/1301.2952**

4. 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
@newscientist 7031
@BadAstronomer 3392
@PiadasNerds 2558
@muyinteresante 2551
@NatureNews 2337
@tomscott 2277
@guardianscience 2210
@neiltyson 2071
@el pais 2050
@cuneytozdemir 2024
@publico es 1962
@marcuschown 1955
@daraobriain 1869
@HAL9000 1823
@microsiervos 1794
@johanknorberg 1781
@cnnbrk 1727
@sciam 1470
@CMSexperiment 1389
@enrique ganem 1312
@gobiernoespa 1211
@aberron 1193
@mashable 1164
@RobDenBleyker 1161
@AngryBirds 1159
@verge 1152
@NatGeo 1106
@BBCWorld 1065
@jim68000 1050
@Queen UK 1031
@materia ciencia 1027
@michiokaku 1021
@moedetriana 1010
@wired 996
@ChrisEvans 992
@BreakingNews 942
@BBCBreaking 933
@Dios Padre 928
@BillBailey 923
@shanselman 907
@warbley 869
@jovemnerd 860
@DaniMateoAgain 844
@So_aSisniega 842
@Markgatiss 838
@TheScienceGuy 832
@elbaronrojo

For further information
Kate Chapple, Press Office, University of Birmingham, tel 0121 414 2772 or 07789 921164.

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