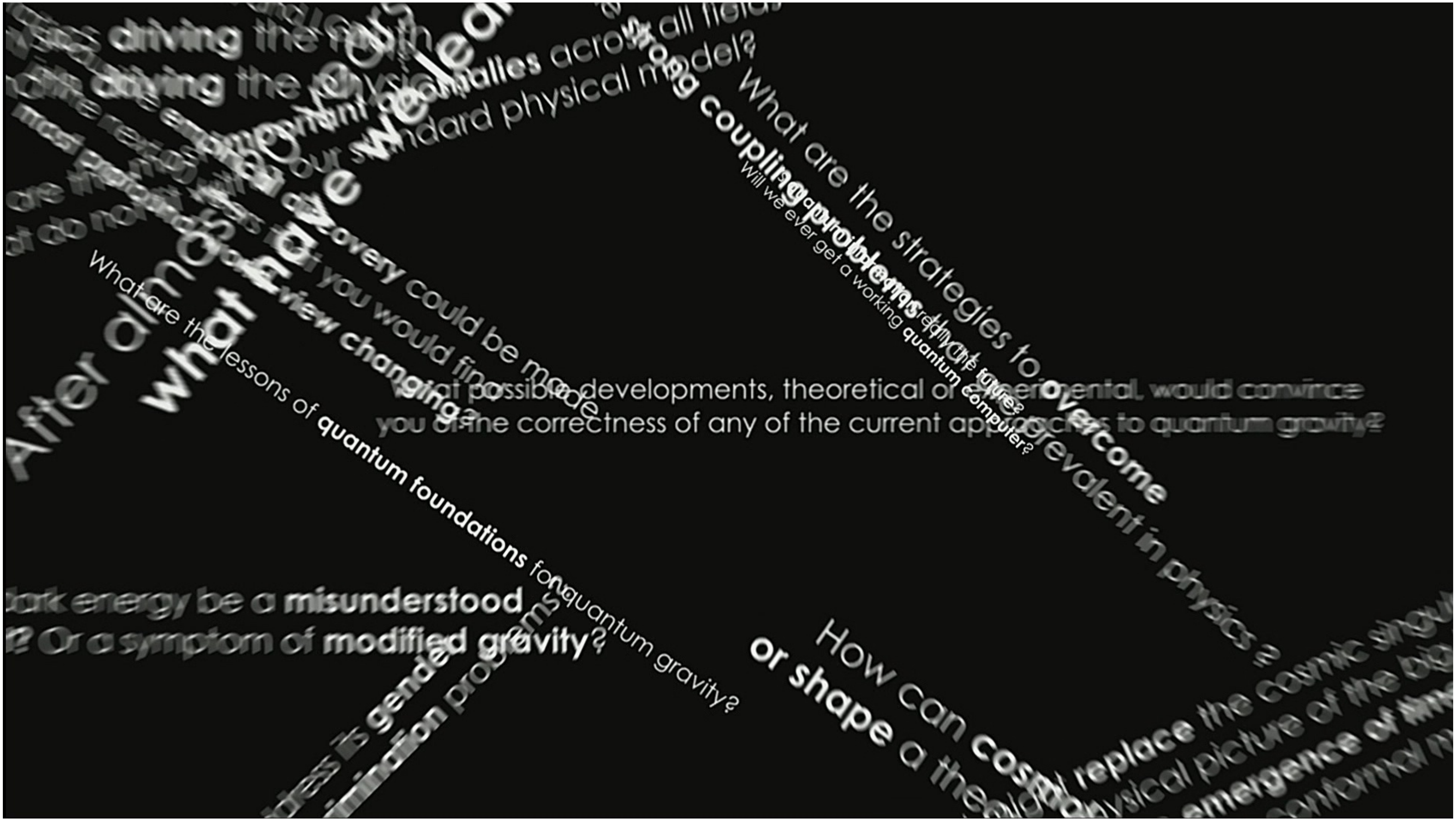
Title: Welcome to Convergence - Opening Panel: Physics Today

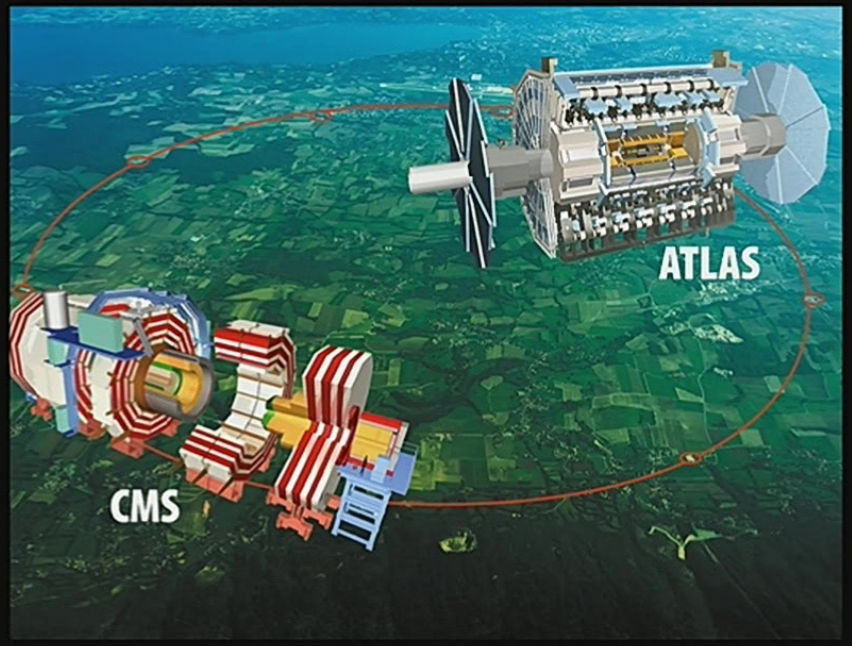
Date: Jun 22, 2015 09:00 AM

URL: http://pirsa.org/15060045

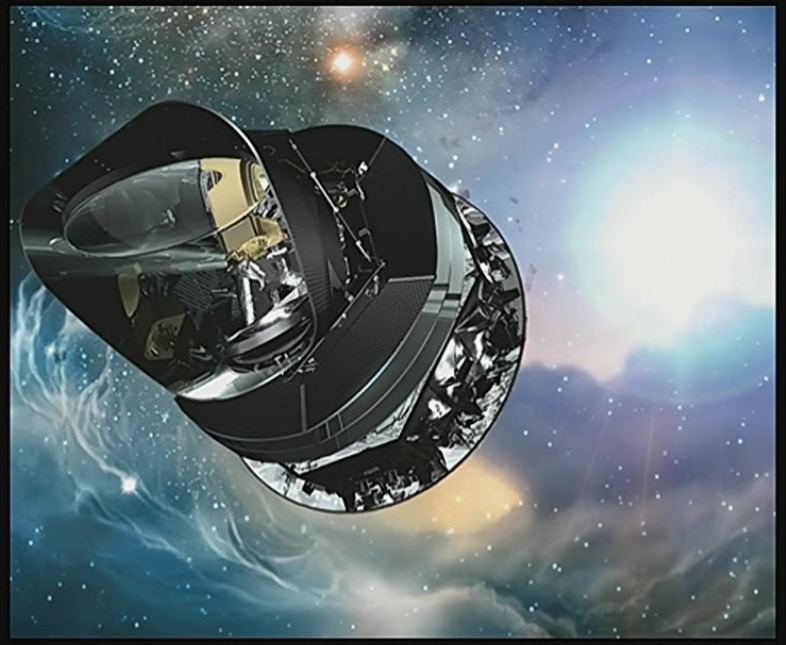
Abstract:


What are the lessons of quantum foundations for quantum gravity?
What possible developments, theoretical or experimental, would convince you of the correctness of any of the current approaches to quantum gravity?
What are the strategies to overcome
Will we ever get a working quantum computer?
standard physical model?
could be made
Or a symptom of modified gravity?
How can

These are wonderful times for physics

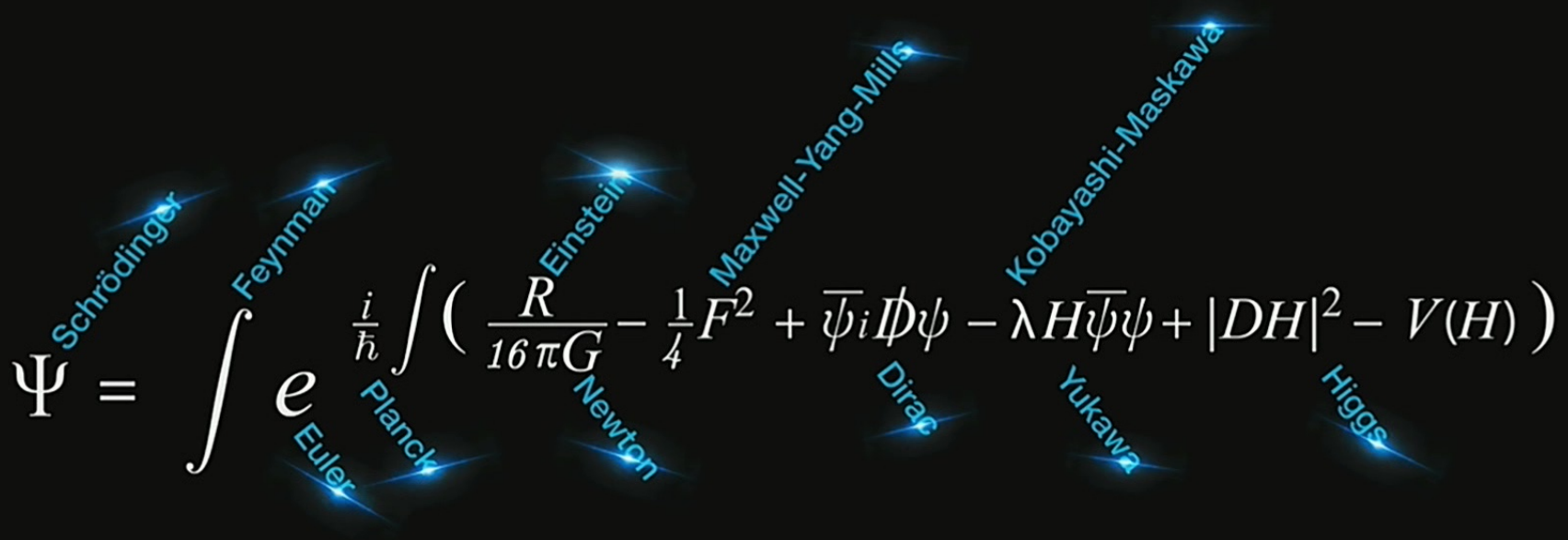


LHC



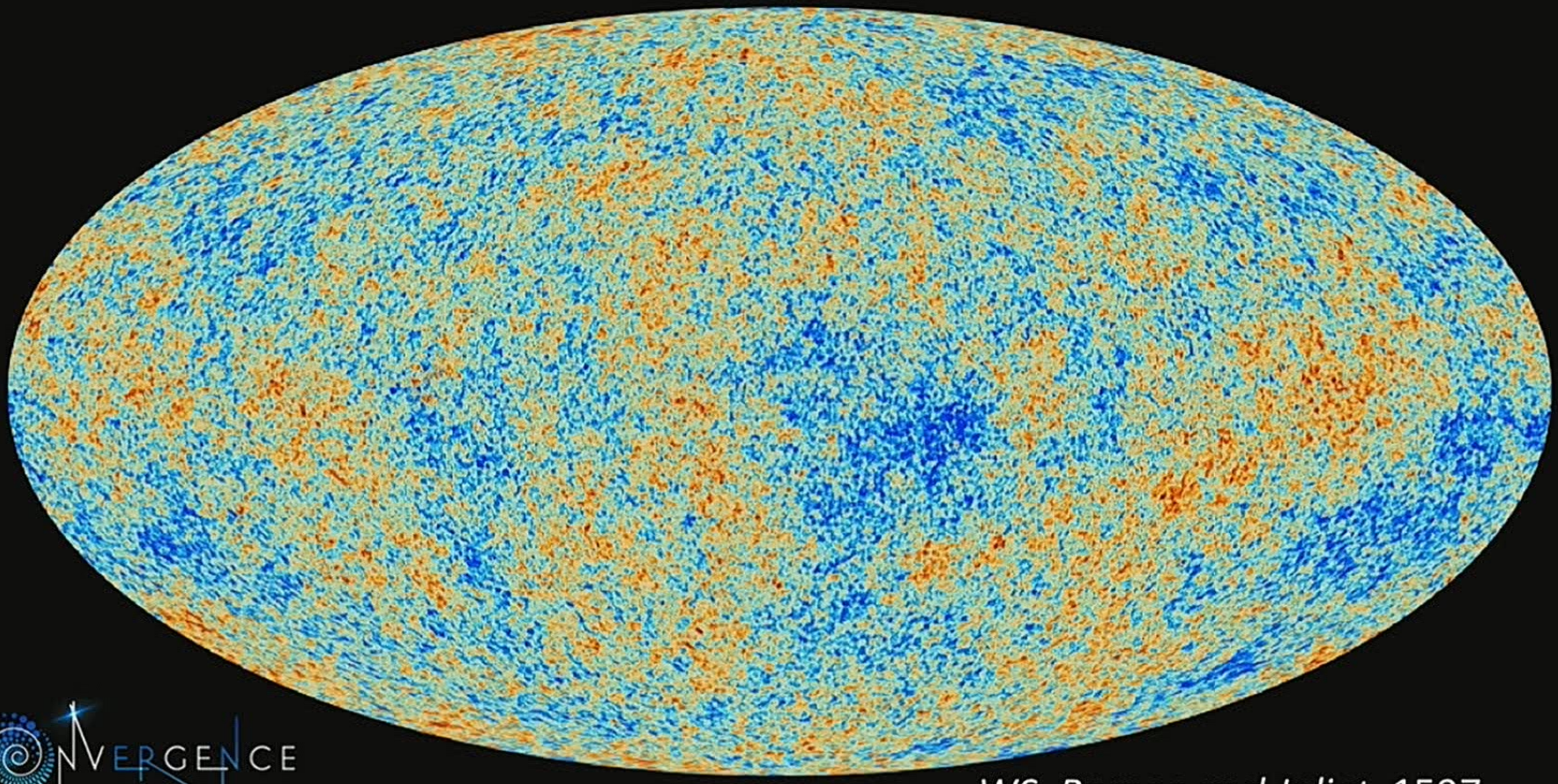
Planck

all known physics



CONVERGENCE

that vast shore wash'd with the farthest sea



CONVERGENCE

WS, Romeo and Juliet, 1597

"Just six numbers"

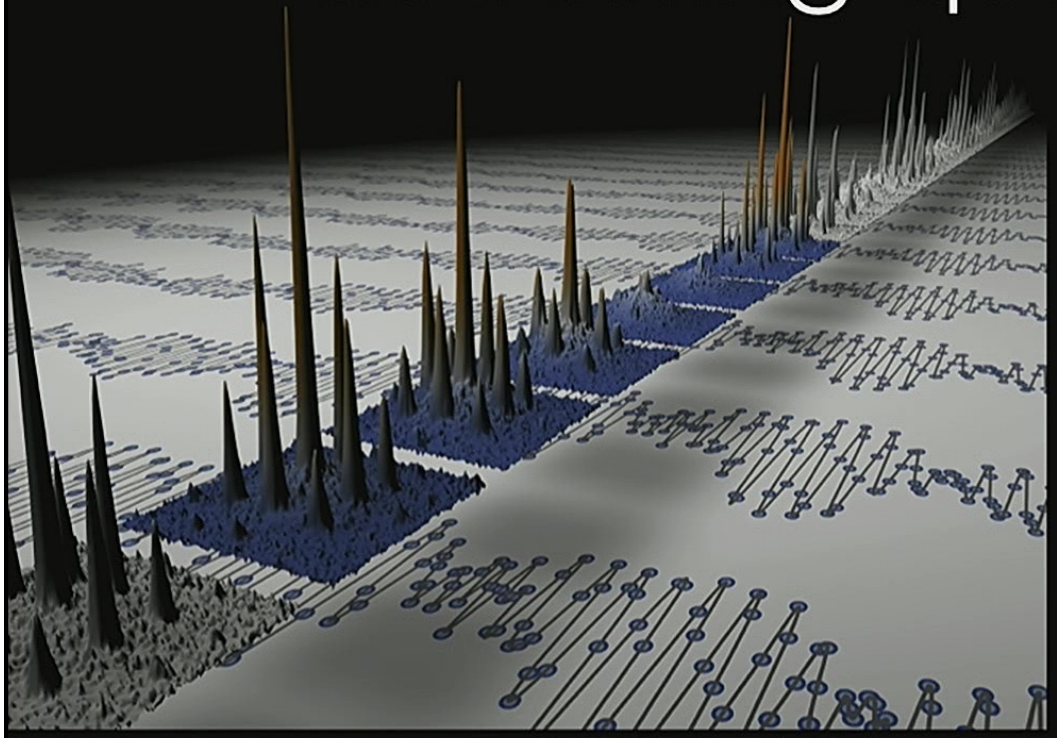
		Percentage Error
Expansion rate:	67.8±0.9 km s^{-1} Mpc^{-1}	1%
Baryon density:	0.048±0.0005 x critical	1%
Dark matter density:	0.26±0.005 x critical	2%
Dark energy density:	0.69±0.006 x critical	1%
Fluctuation amplitude:	4.6±0.006 x 10^{-5}	1%
Scalar spectral index: (scale invariant = 0)	-.033±0.004	12%

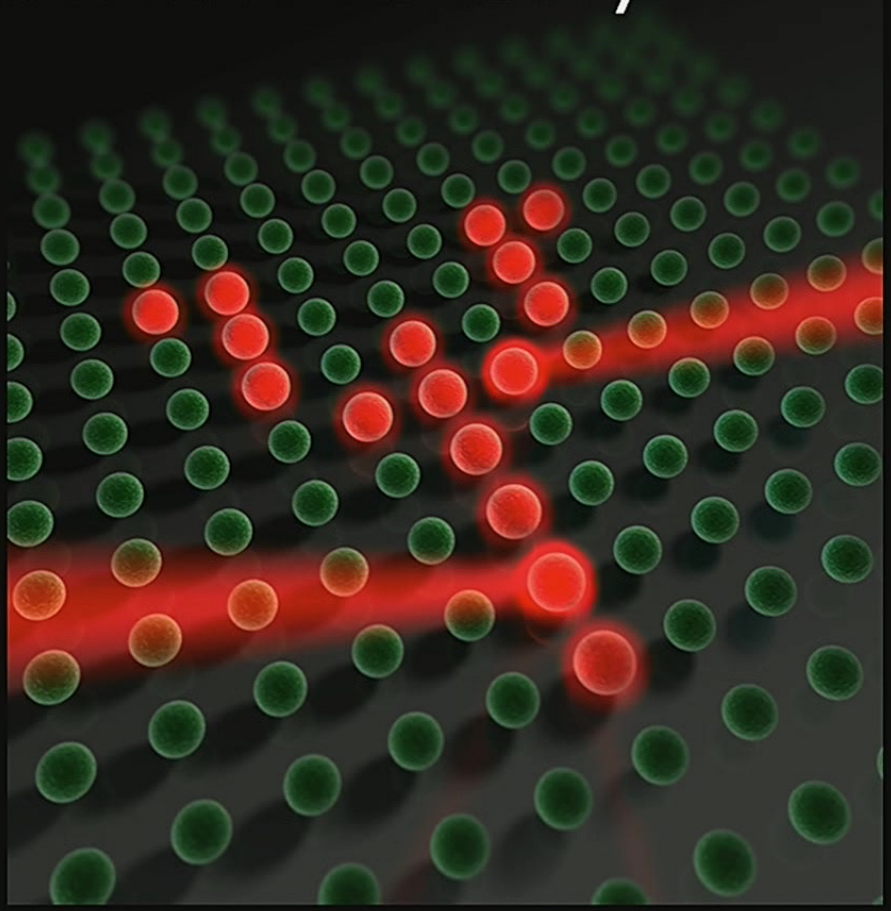

First Stable Beams
ATLAS
EXPERIMENT
proton-proton collisions at 13 TeV
Run: 266904
Event: 9393006
2015-06-03 10:40:31 CEST
CONVERGENCE

dark matter observations

1E 0657-558
"bullet cluster"

accessing quantum reality





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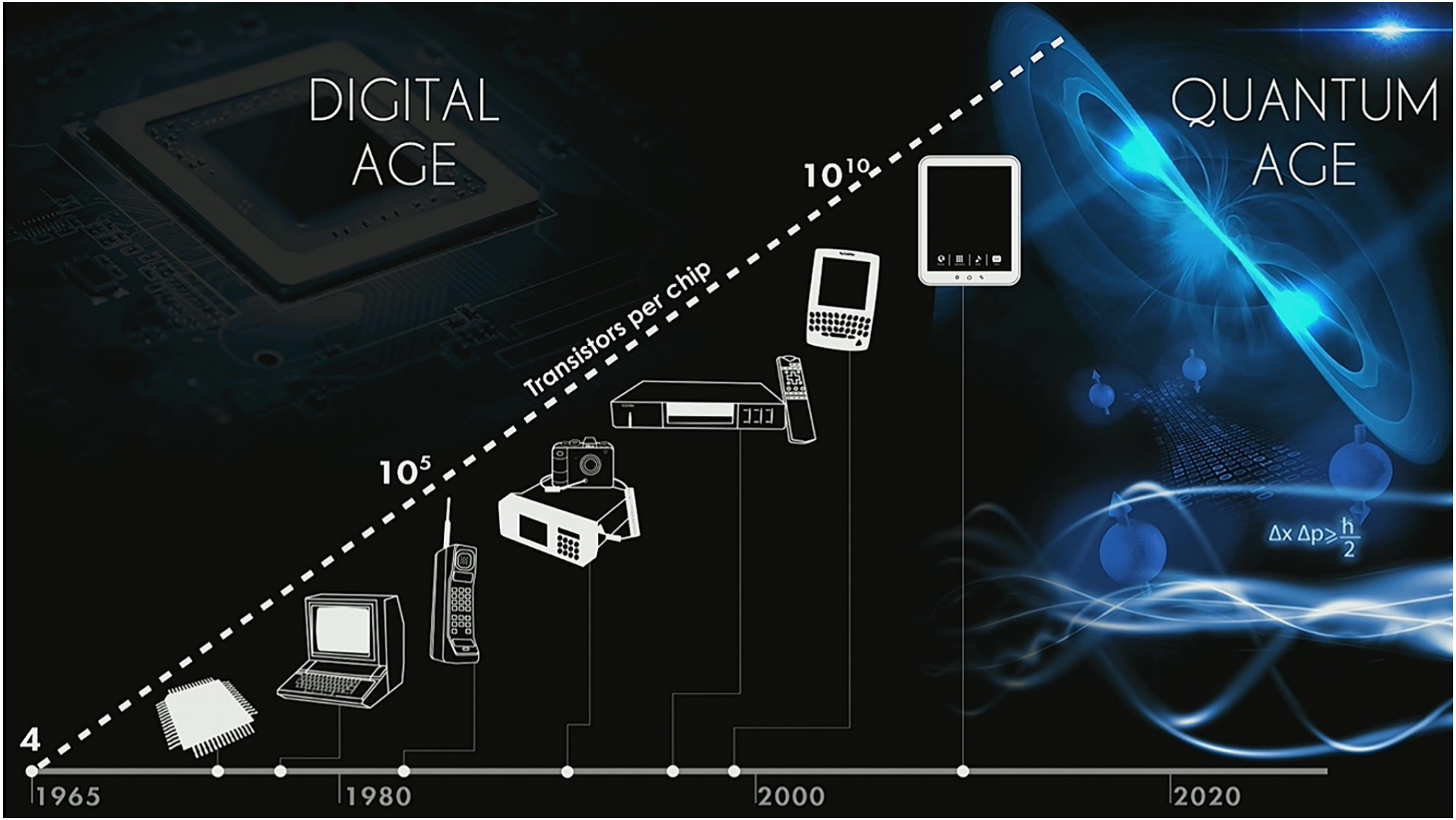
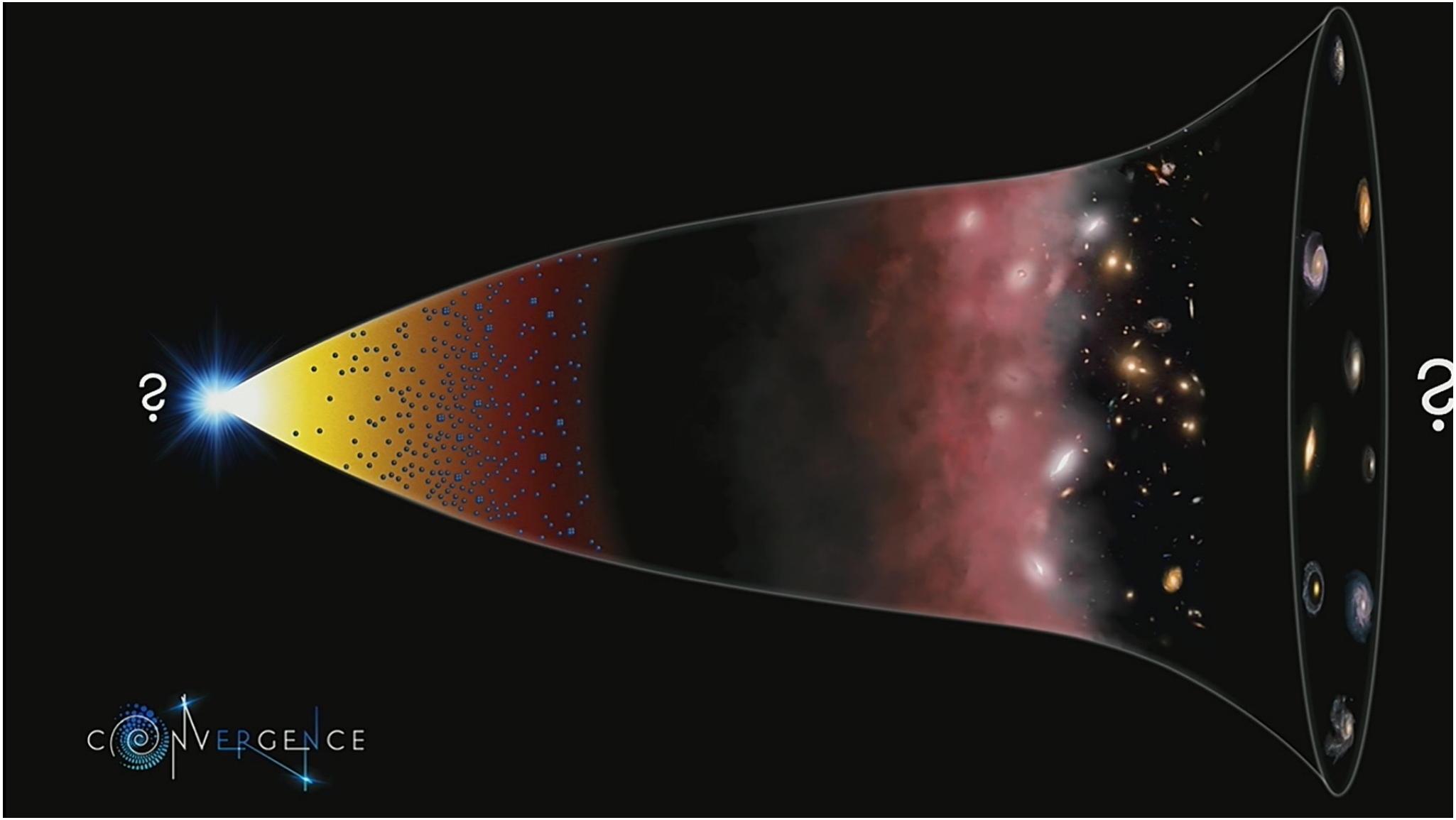

DIGITAL
AGE
QUANTUM
AGE
Transistors per chip
10^{10}
10^{5}
4
$\Delta x\,\Delta p \geq \frac{h}{2}$
1965
1980
2000
2020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CONVERGENCE


revolutions past
CONVERGENCE