



DEPARTMENT OF NONINVASIVE CARDIOVASCULAR
IMAGING AND FUNCTIONAL DIAGNOSTIC

Imaging the heart with ultrasound

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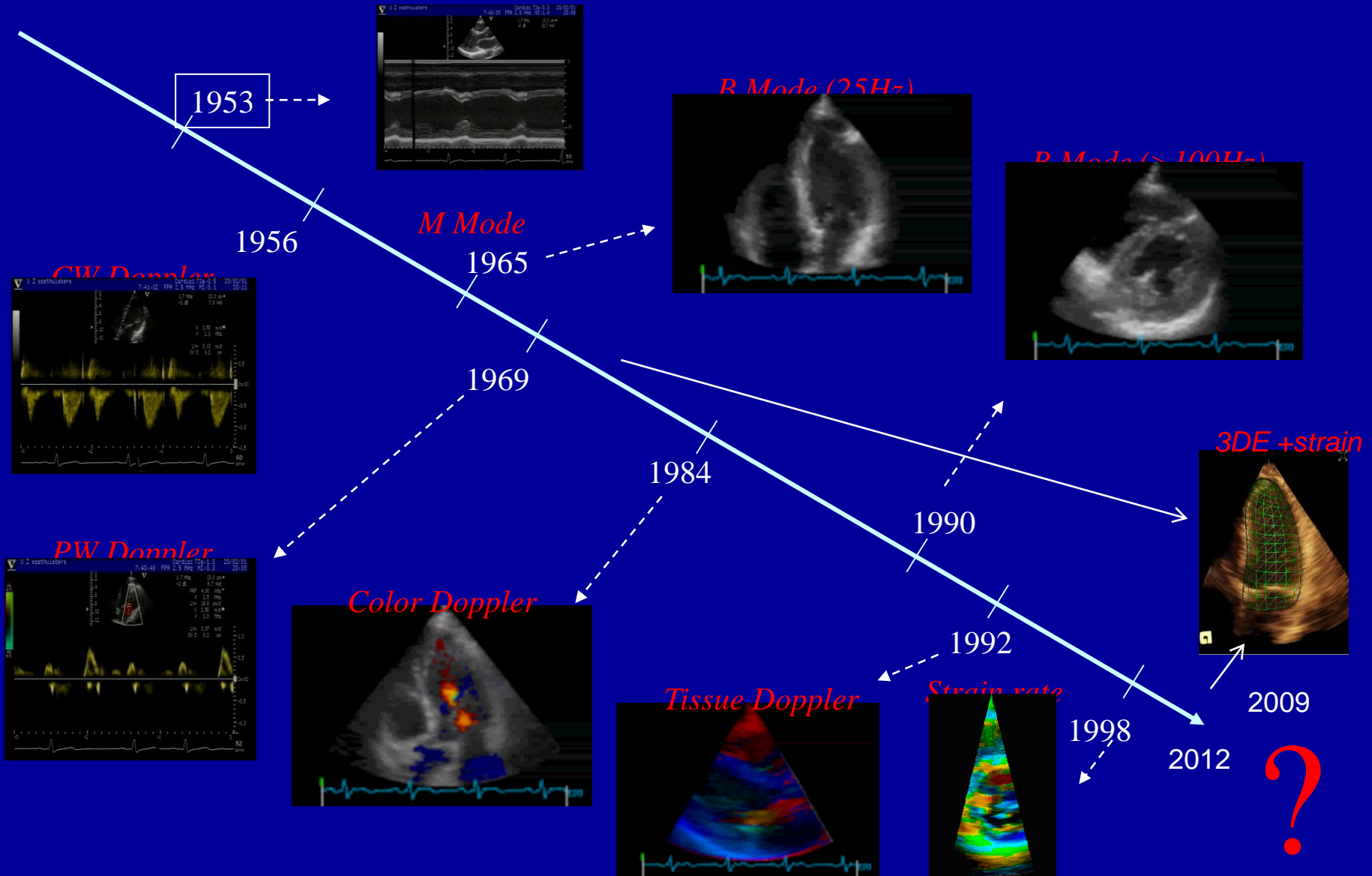
Sofia, Bulgaria

05.04.2012

Imaging the Heart



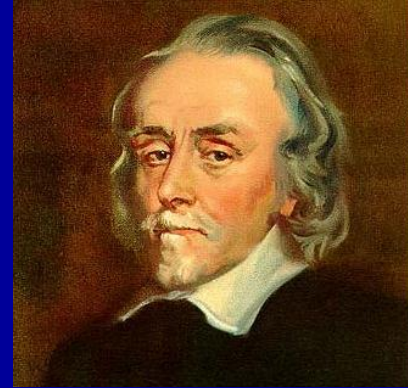
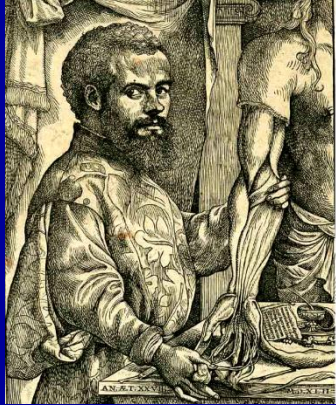
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But....

1534 Vesalius
“the heart, for instance, has four chambers”



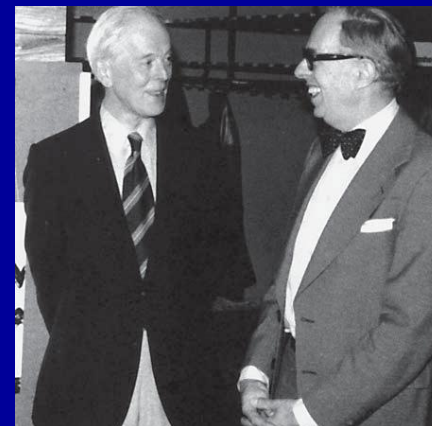
1616 – Sir William Harvey first describe the importance of heart architectonic of ventricular function in his seminal treatise: :
De Motu Cordis



L. Spalanzani 1729-1777
M . Currie 1880



1706 Raymond de Vieussens,
first **describes the structure** of the heart's chambers and vessels and LV



1977
Albert and Mary Lasker Foundation awarded Edler and Hertz with Clinical Medicine Research Prize



Myocardial Deformation Imaging

- **1961** Heart motion signal first recorded
- **1978** Pulsed Doppler myocardial velocity profile
- **1991** Color Doppler mean myocardial velocities encoded
- **1996** 1 D- myocardial strain /SR
- **2007** 2D strain application widely applicable
- **2009** 3D strain
- **2012** Ultra high frame rate >1000 samples/s strain/ SR imaging



Current and Evolving Echocardiographic Techniques for the Quantitative Evaluation of Cardiac Mechanics: ASE/EAE Consensus Statement on Methodology and Indications

Endorsed by the Japanese Society of Echocardiography

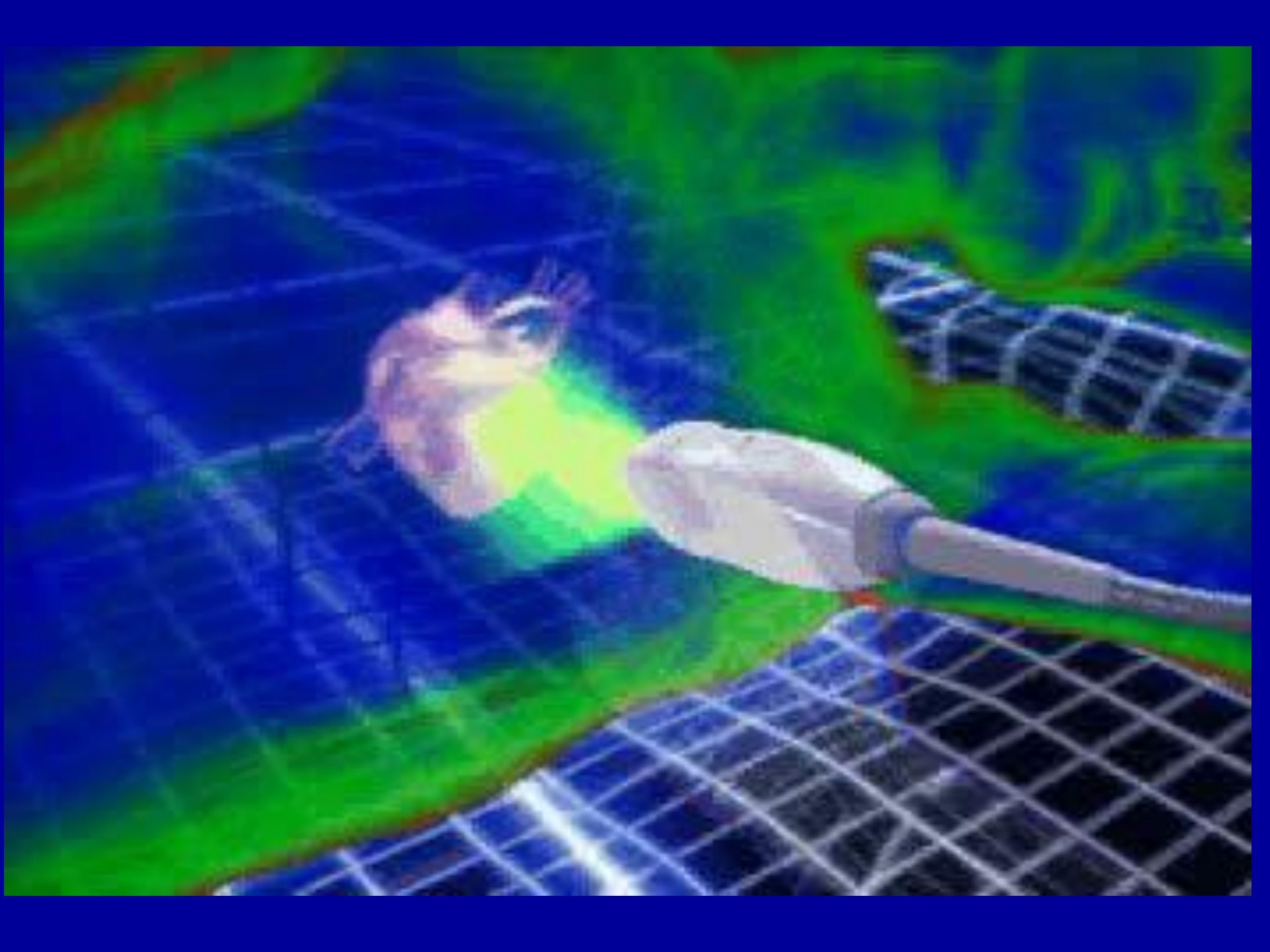
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(J Am Soc Echocardiogr 2011;24:277-313.)

Keywords: Ventricular function, Myocardial strain, Tissue Doppler, Myocardial Doppler, Tissue tracking,
Speckle tracking, Integrated backscatter

Clinical role :

- Defining Normal Deformation
- Cardiac hypertrophy/athlets
- Ischemia/ Stress Echo
- Sub-clinical Diseases/ Therapy
- Right ventricular function



THE FUTURE ?

**Ultra high frame rate
Deformation Imaging**



EAE Teaching Course

Organized with the Bulgarian Working Group on Echocardiography

NEW ECHOCARDIOGRAPHIC TECHNIQUES FOR MYOCARDIAL FUNCTION IMAGING

With live demonstrations

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