

## Sammendragsslysbilde

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- 3-/4-dimensjonal parametriske avbildning av myokardial bevegelse og deformasjon

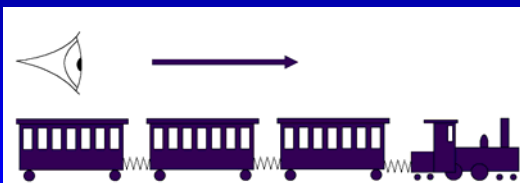
## 3-/4-dimensjonal parametriske avbildning av myokardial bevegelse og deformasjon

Asbjørn Støylen, Dr. med.  
ISB, DMF,  
NTNU

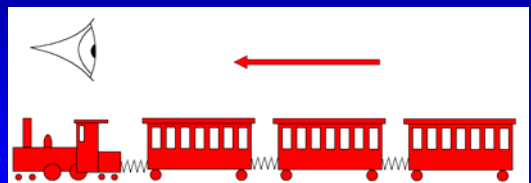
## Hva er parametriske avbildning?

- Fargeavbildning av måleverdier
  - Hastighet
  - Forflytning
  - Deformasjon
- Semikvantitativ
  - Robust
  - Viser utbredelse av patologi
  - Tid-rom relasjoner

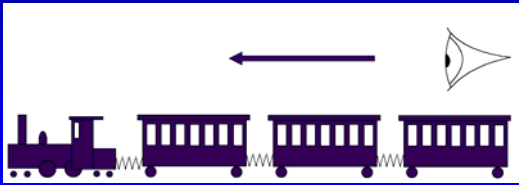
## Hastighetsavbildning:



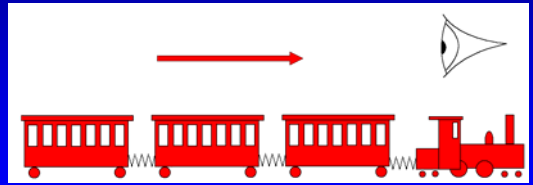
## Hastighetsavbildning:



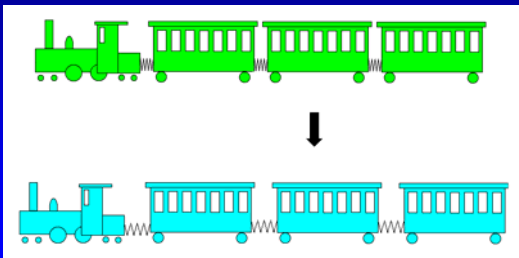
## Hastighetsavbildning:



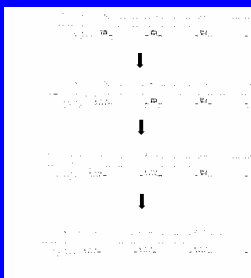
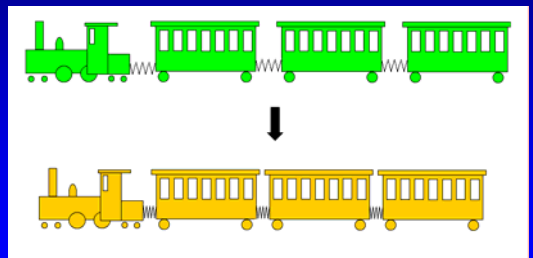
## Hastighetsavbildning:



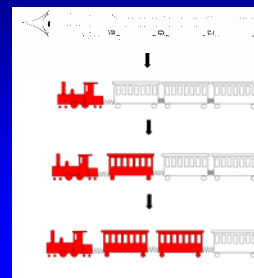
## Deformasjon - strekk:



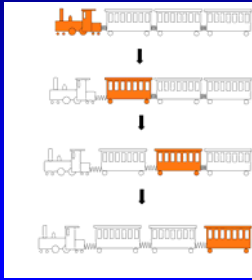
## Deformasjon - forkortning:



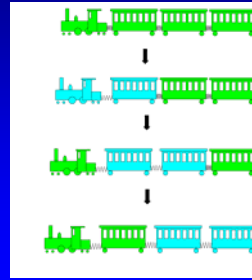
## Hastighet:



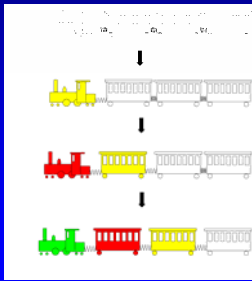
### Aksellerasjon:



### Deformasjon:



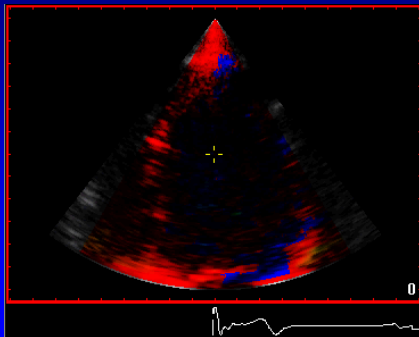
### “Tissue tracking”:



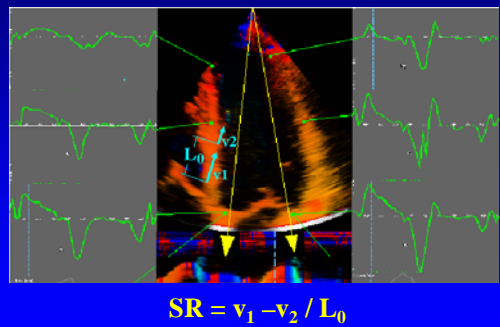
### Tissue tracking:



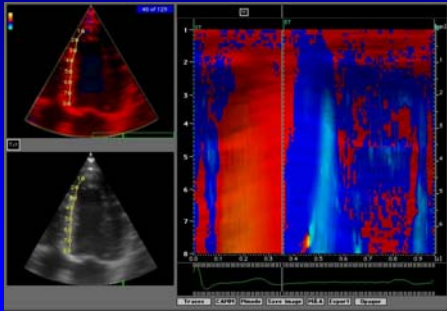
### Farge vevsdoppler:



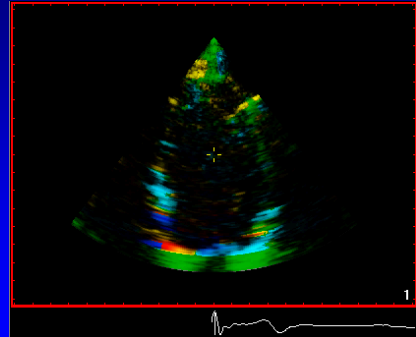
### Farge vevsdoppler:



## Curved M-mode (CMM):

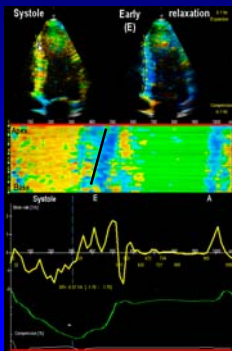


## Strain rate imaging:

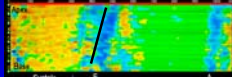


## Strain rate Imaging.

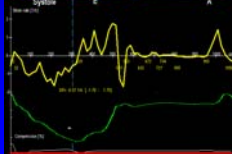
2D:



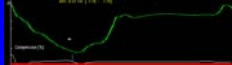
M-mode:



Strain rate:

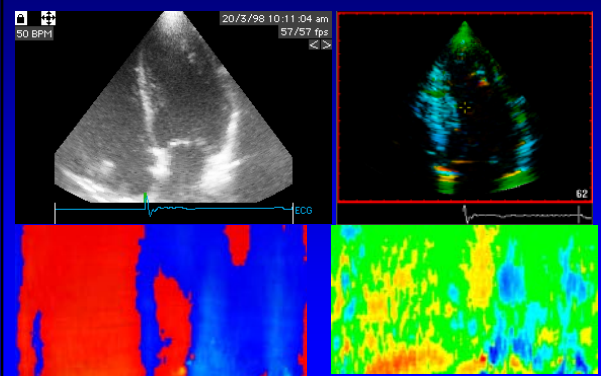


Strain:

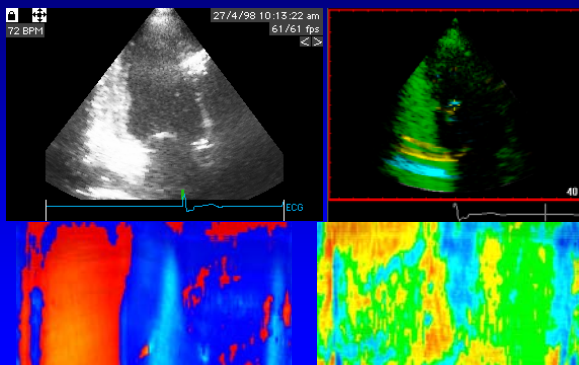


Støylen et al 2000

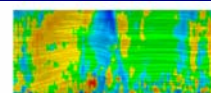
## FVI



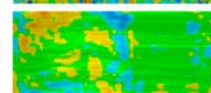
## NVI:



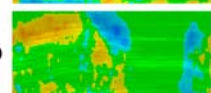
1: Normal:



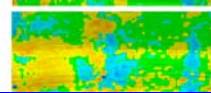
2: Hypokinetic:  
(two basal segs.)



3: Akinetic:  
(two basal segs.)

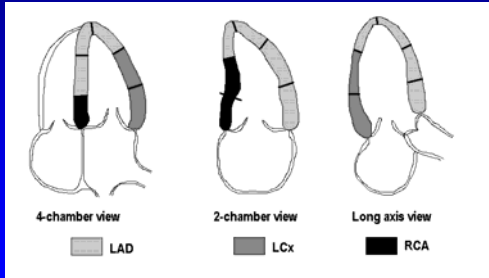


4: Dyskinetic:  
(apical segm.)

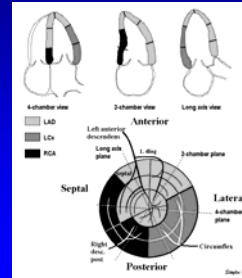


Støylen et al 2000

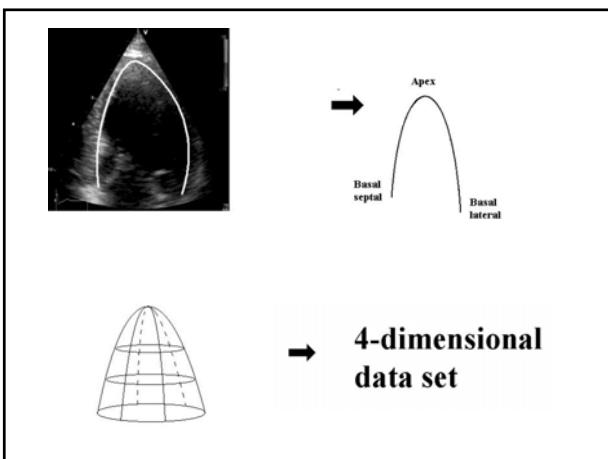
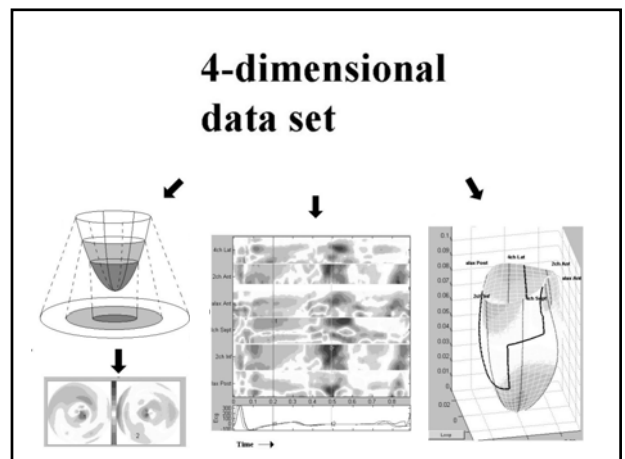
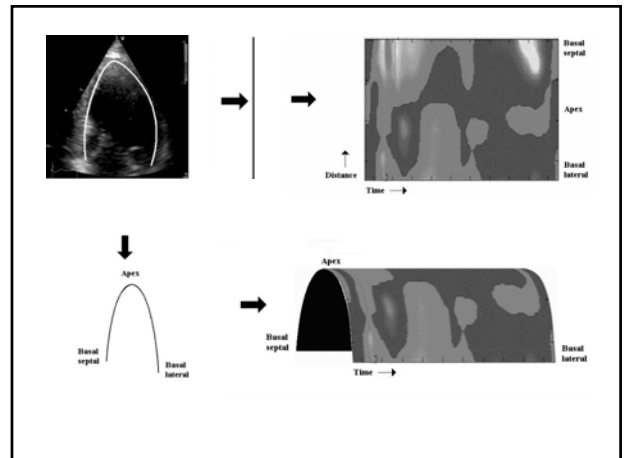
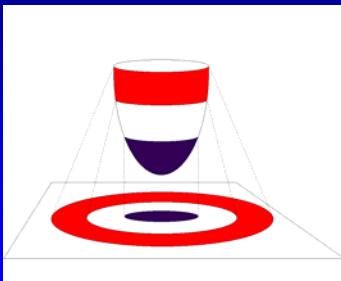
## Standard plan:



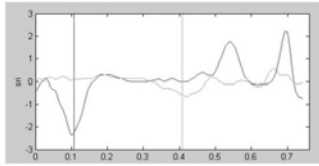
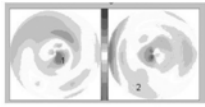
## Segmental analyse



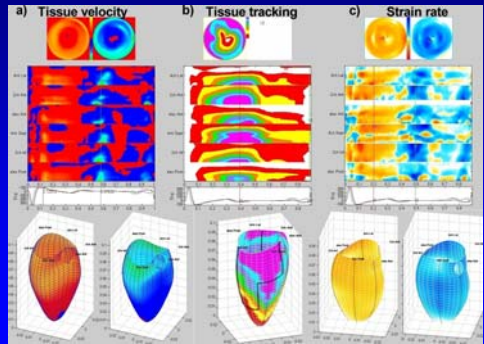
## Bull's eye projeksjon:



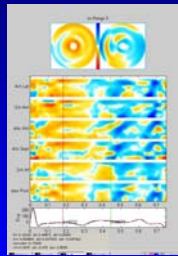
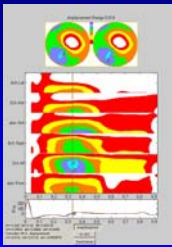
# 4-dimensional data set



# Normal:

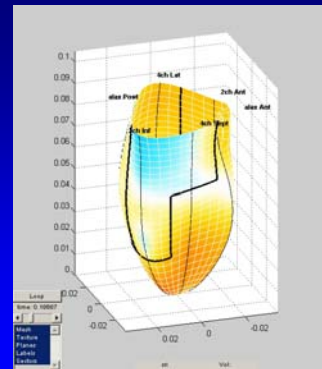
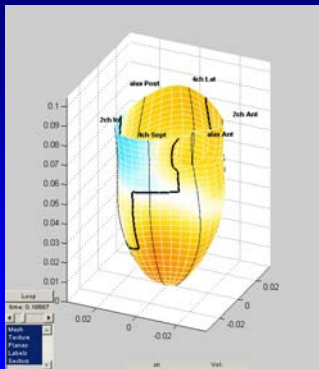
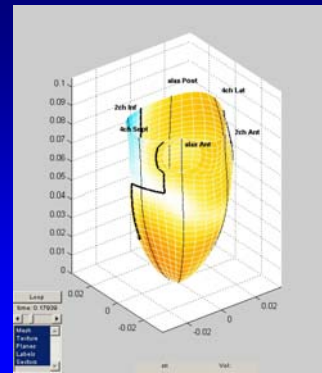


# NVI

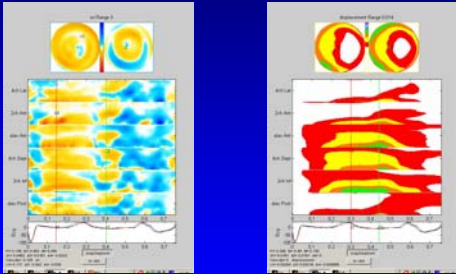


• Tissue tracking

SRI

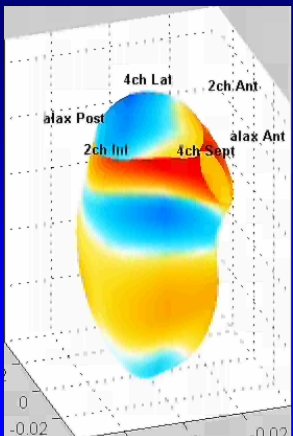
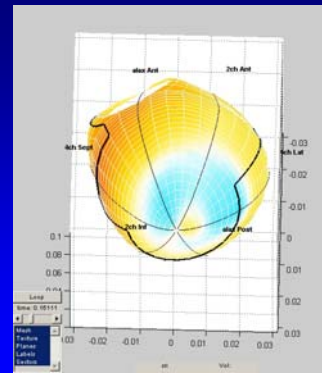
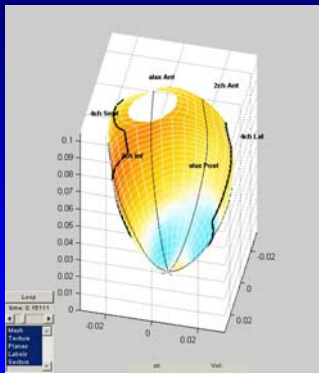
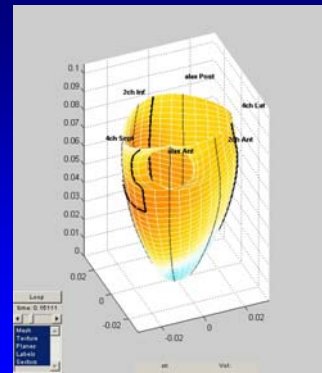


## FVI



• Tissue tracking

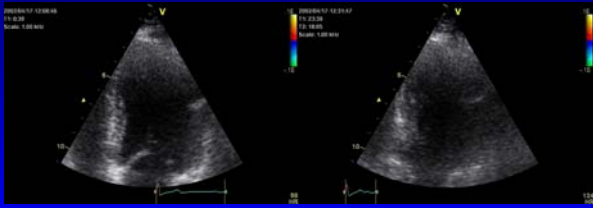
SRI



## Hva skal 3-/4D være godt for?

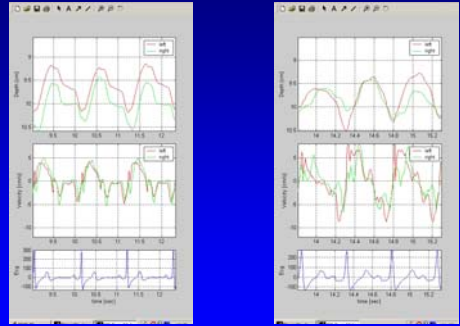
- Presentasjon av data i en annen form.
- Mer korrekt arealvisualisering.
- Mulighet for arealberegning.
- Bedre visualisering av dyssynkroni.
- Lettere visualisering av artefakter.
  
- Infarkt.
- Stressekkokardiografi.

## Stress echo 4 chamber view:

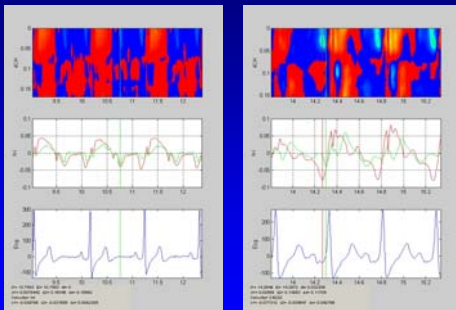


- Baseline HR 65
- peak stress HR 125

## AV-plane motion:

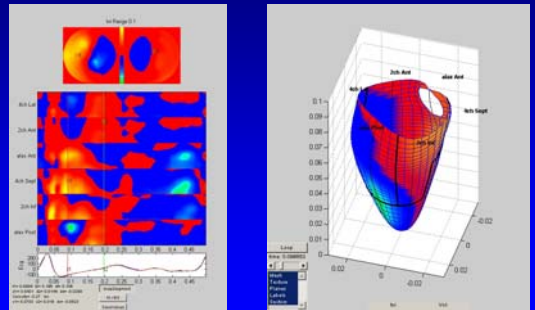


## Tissue Doppler:

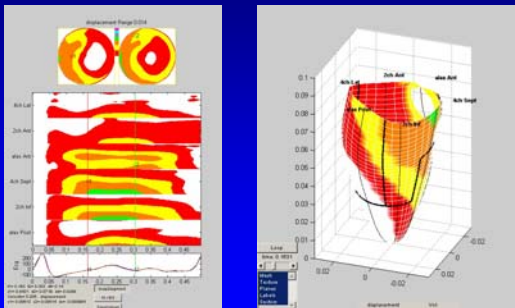


- Baseline HR 65
- peak stress HR 125

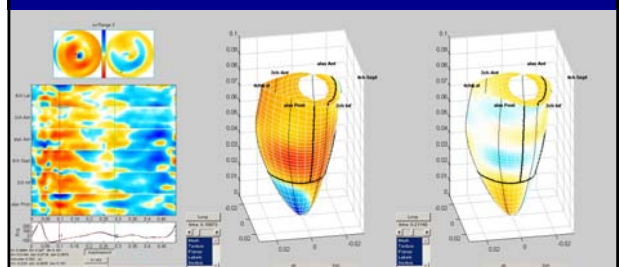
## Tissue Doppler – peak stress:



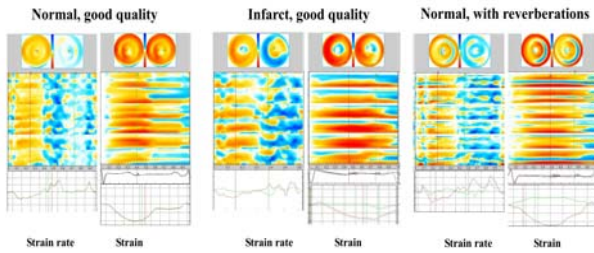
## Tissue tracking – peak stress:



## Strain rate – peak stress:



## Artefakter:



## Fallgruber:

- Fortsatt kun deformasjon i en dimensjon.
- Suggestiv, selv artefakter blir overbevisende.
- Viser 3D flate også der det mangler data.

