

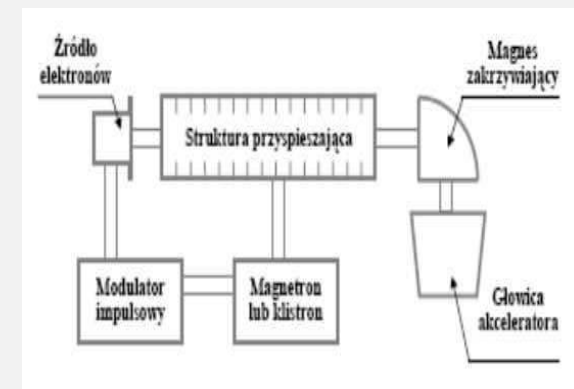
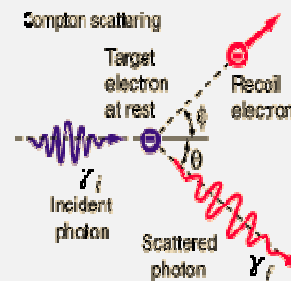
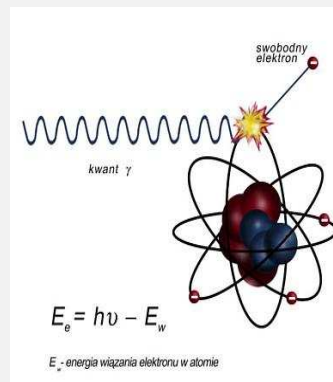
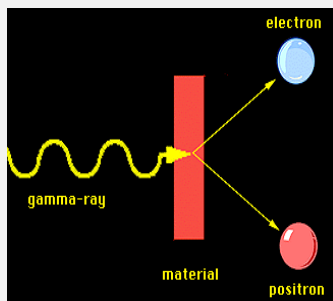
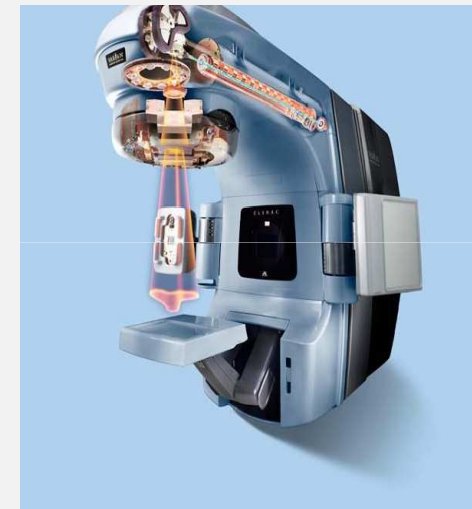
FIZYCZNE PODSTAWY PLANOWANIA RADIOTERAPII PO MASTEKTOMII

Tomasz Kuszewski

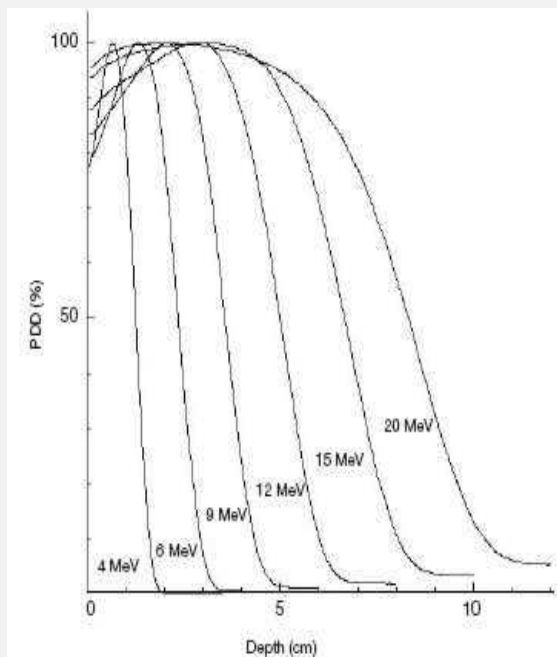


RODZAJE PROMIENIOWANIA JONIZUJĄCEGO STOSOWANE W RADIOTERAPII

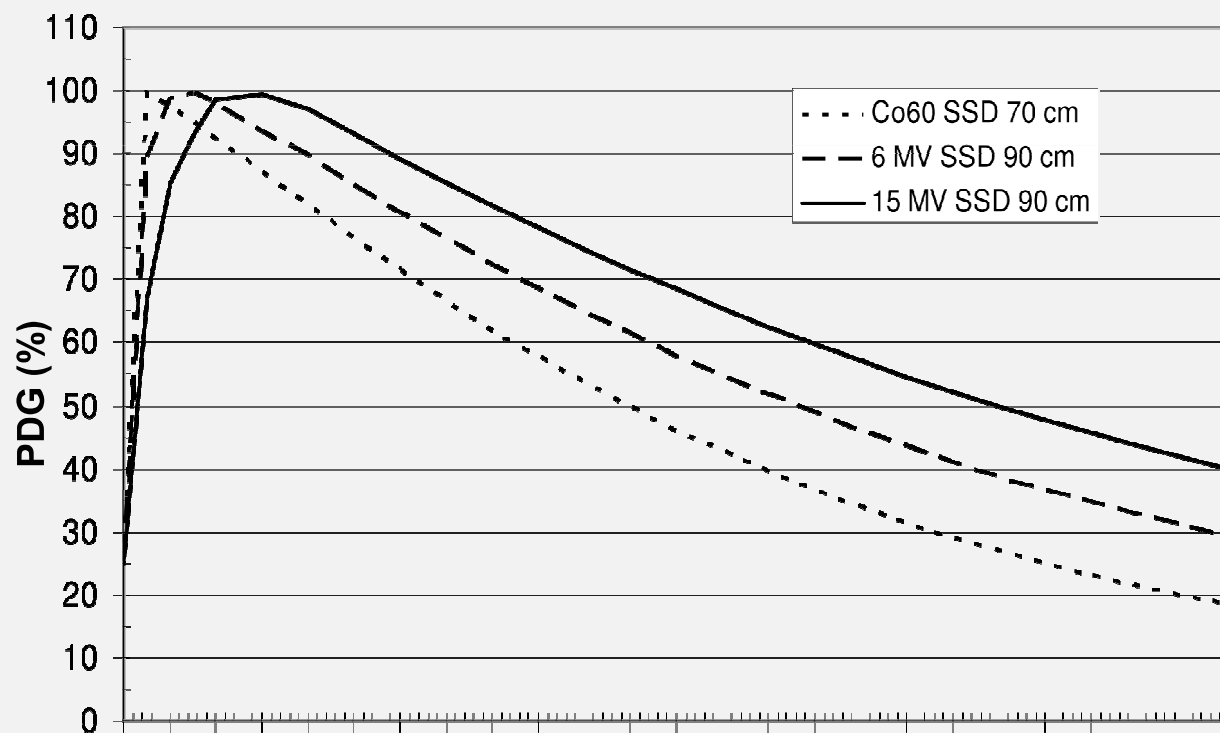
- Elektrony
- Fotony



RODZAJE PROMIENIOWANIA JONIZUJĄCEGO STOSOWANEGO W RADIOTERAPII



elektrony



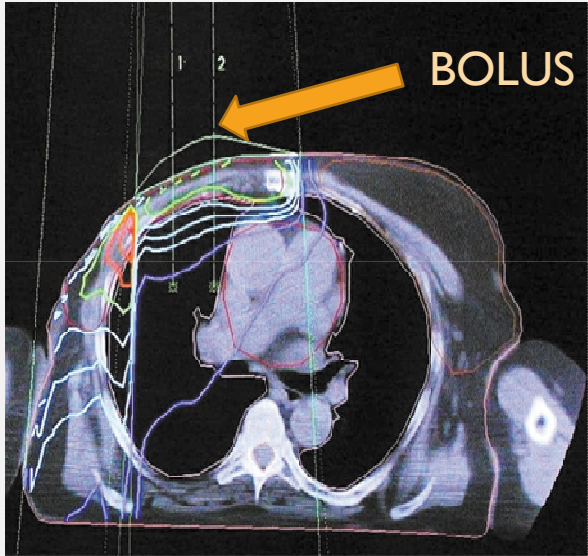
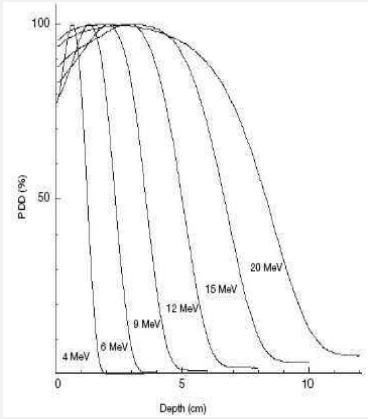
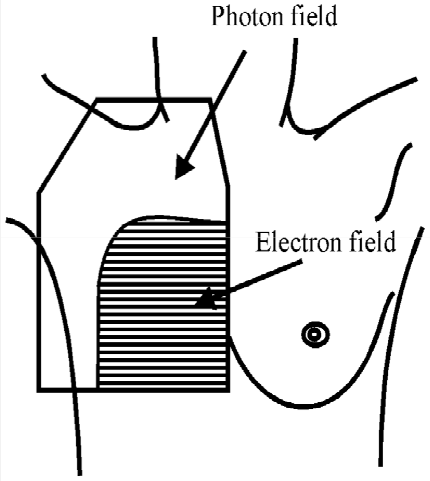
fotony

TECHNIKA ODWRÓCONEGO KIJA HOKEJOWEGO

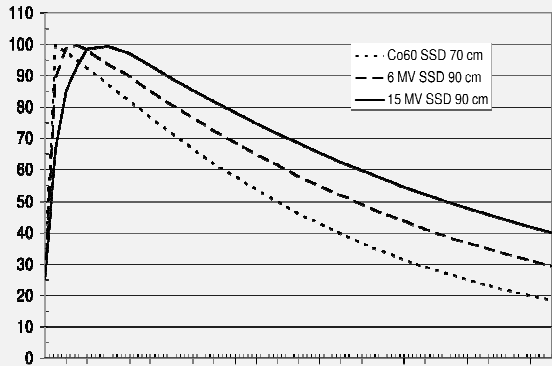
Ułożenie
pacjenta



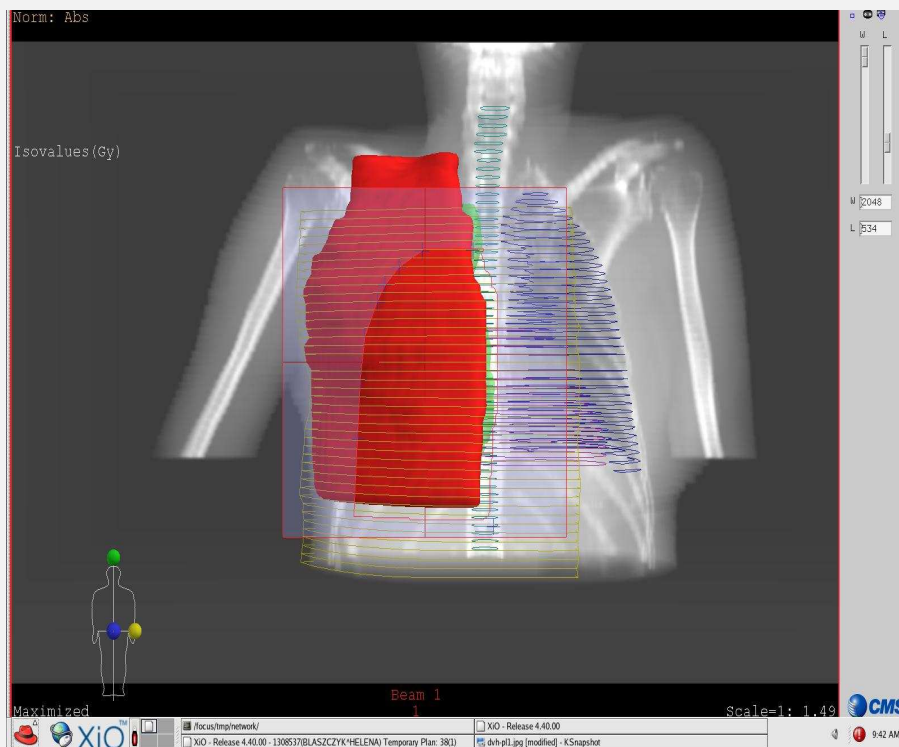
TECNICA ODWRÓCONEGO KIJA HOKEJOWEGO



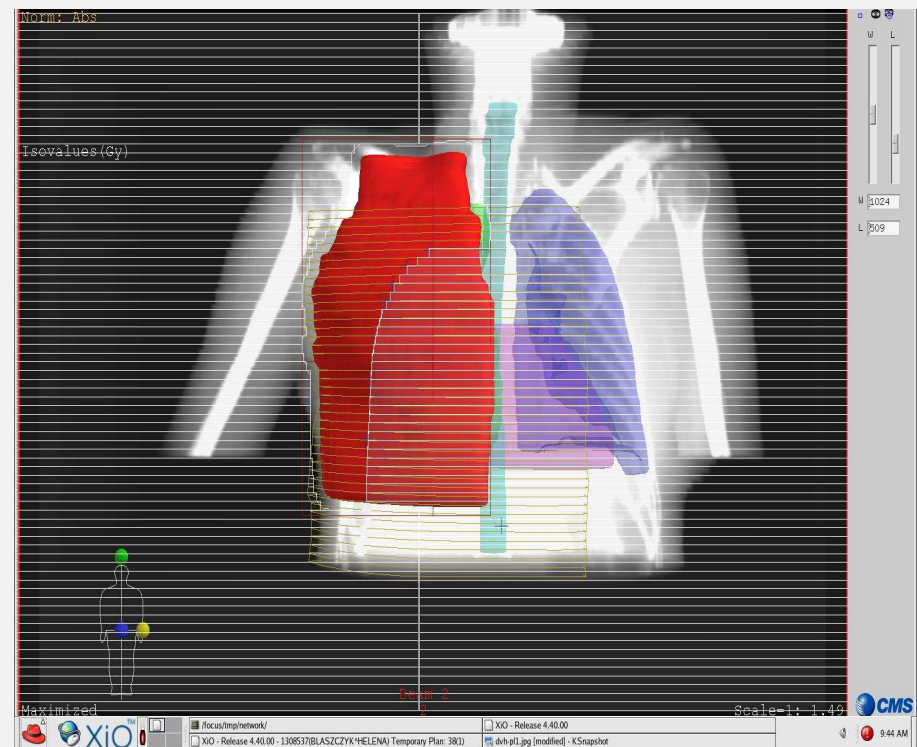
BOLUS



TECHNIKA ODWROCONEGO KIJA HOKEJOWEGO



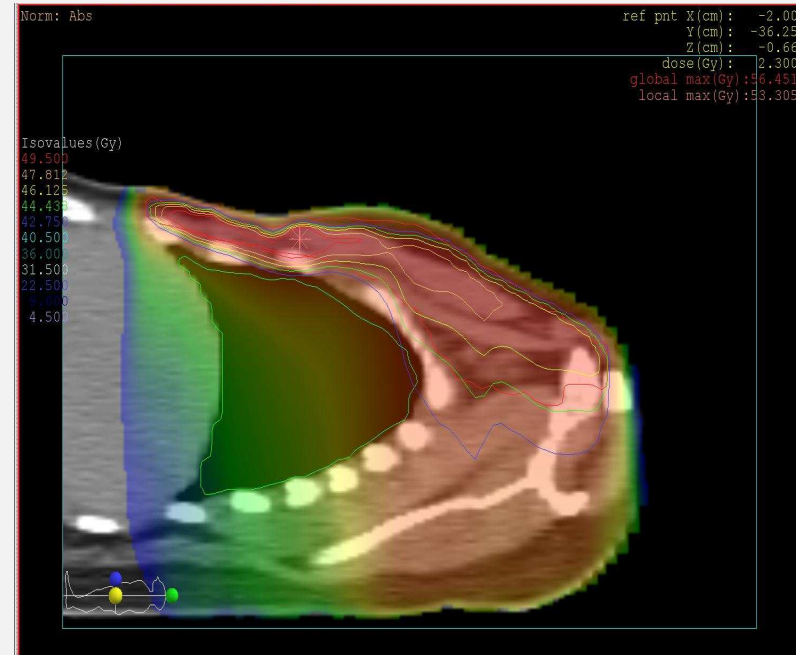
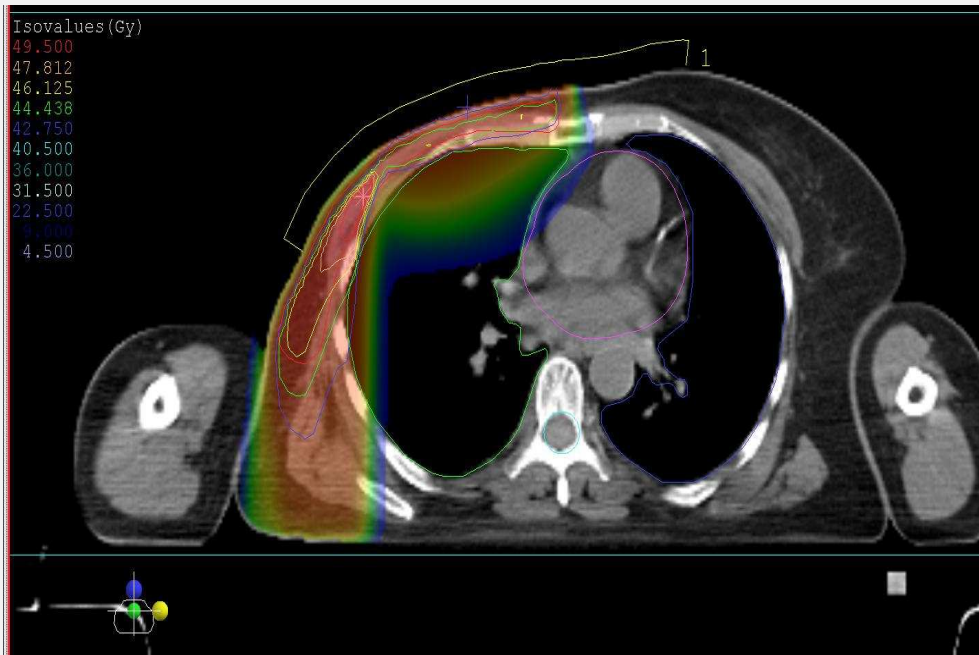
ELEKTRONY



PROJEKCJA BEV

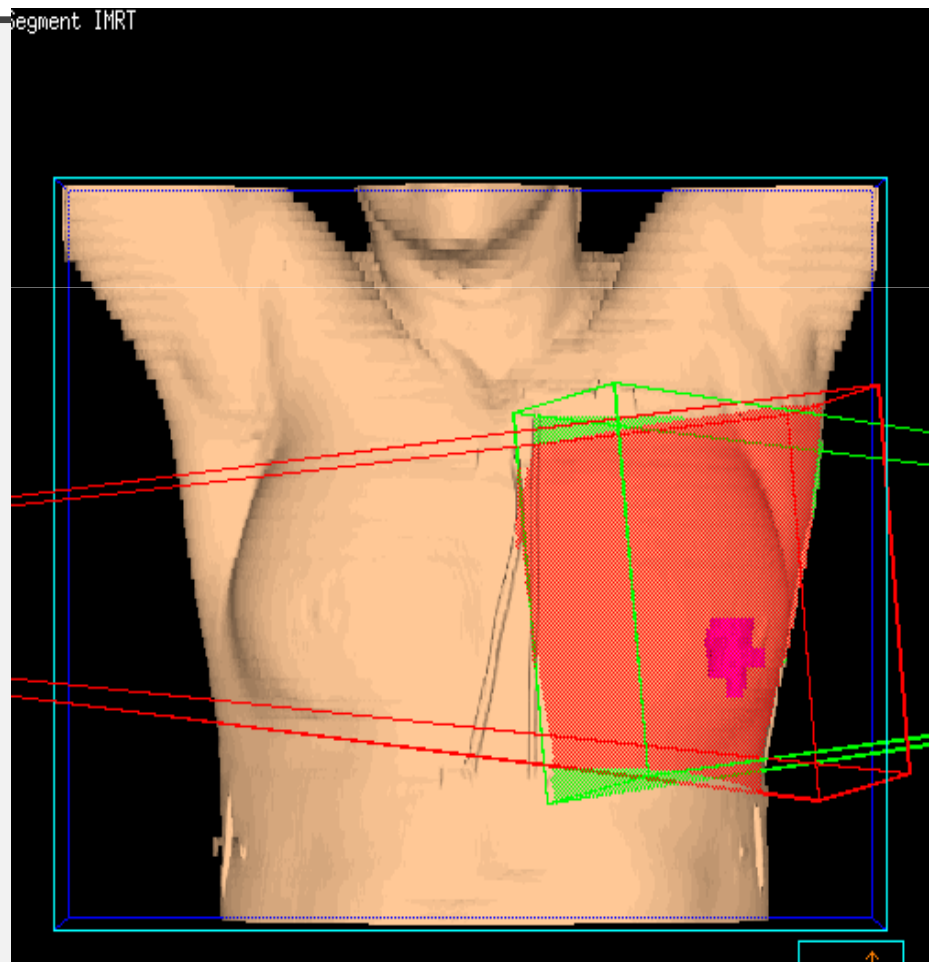
FOTONY

TECHNIKA ODWRÓCONEGO KIJA HOKEJOWEGO

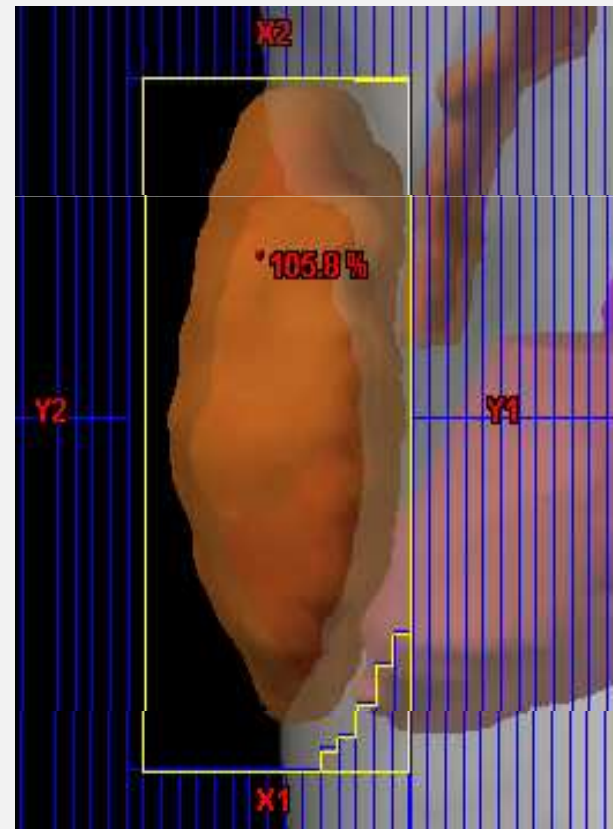
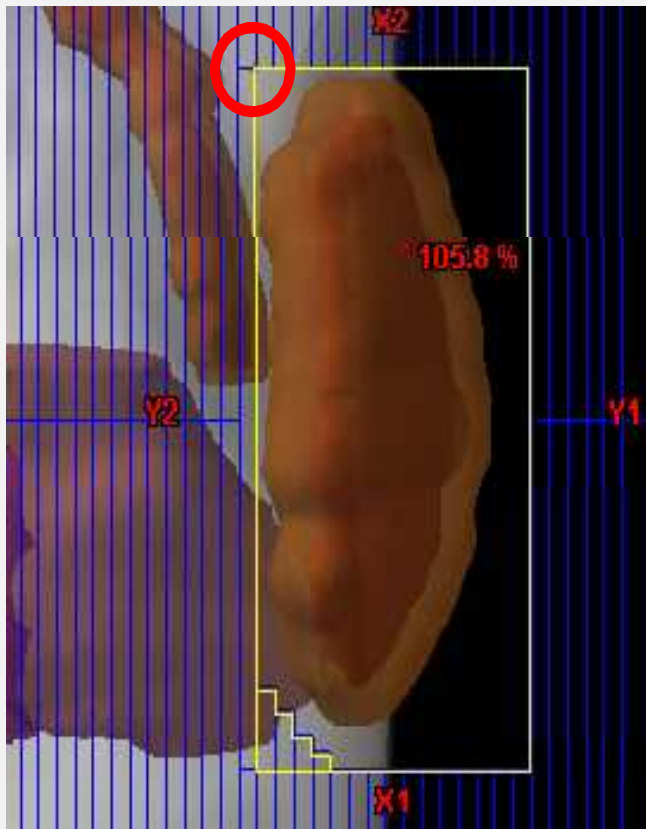


Rozkład dawki

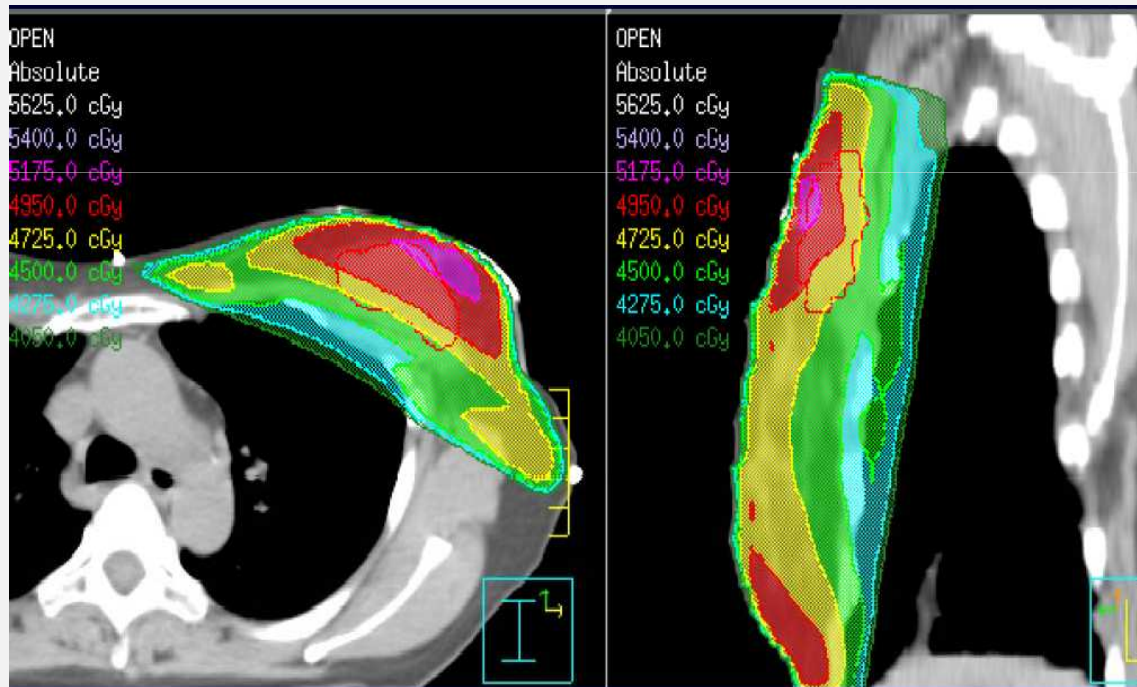
TECHNIKA DWOCH PÓŁ TANGENCJALNYCH



TECHNIKA DWÓCH PÓŁ TANGENCJALNYCH

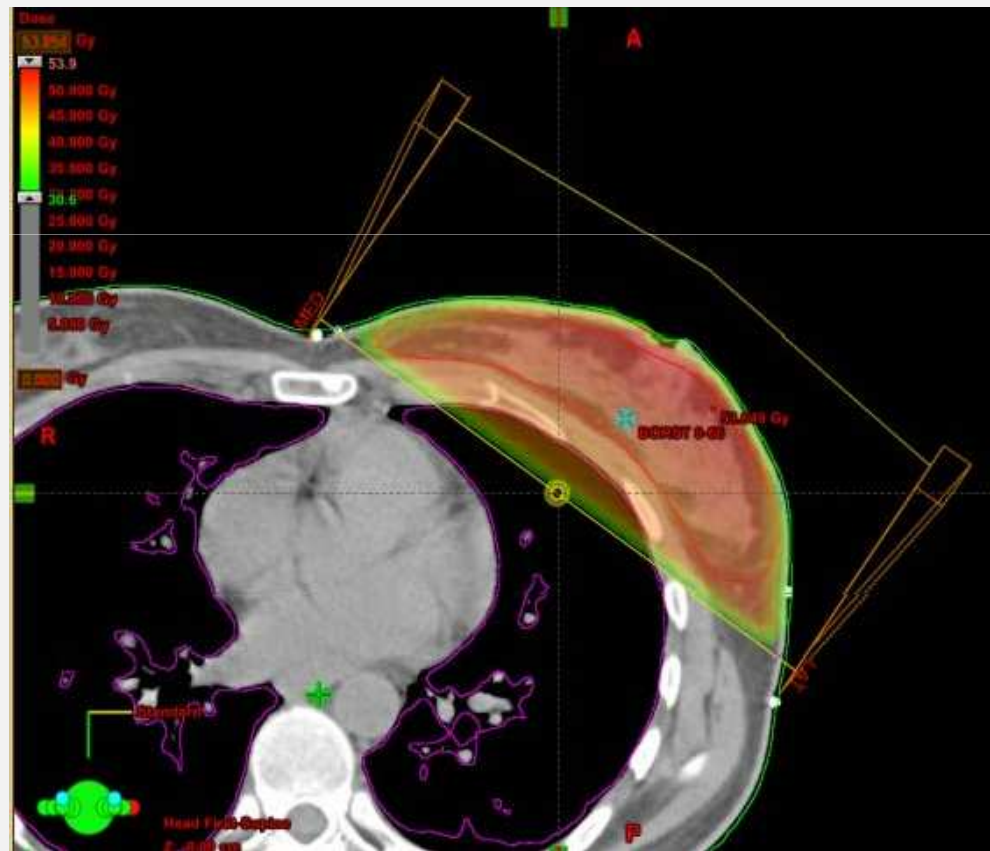


POLA TANGENCJALNE



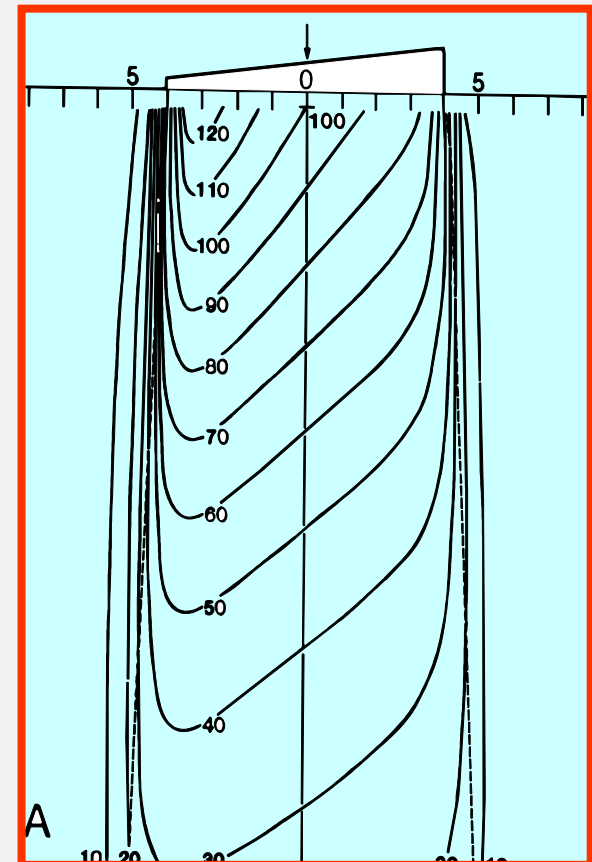
Rozkład dawki

DWA POLA TANGENCJALNE Z FILTRAMI KLINOWYMI

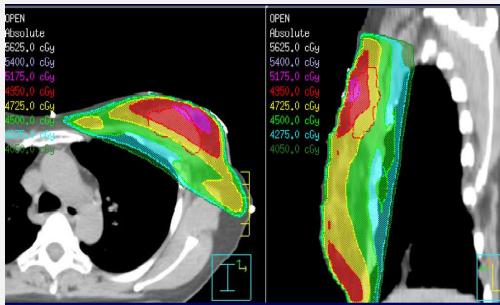


Modyfikacja
rozkładu dawki za
pomocą filtrów
klinowych

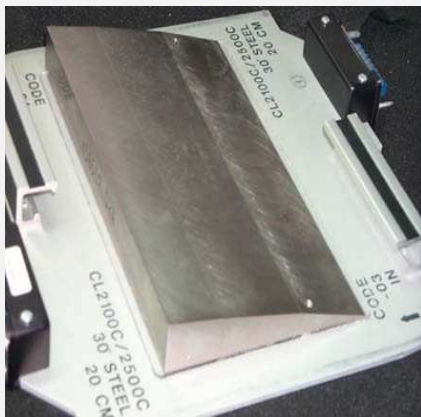
WPŁYW FILTRA KLINOWEGO NA ROZKŁAD DAWKI



MODYFIKATORY ROZKŁADU DAWKI

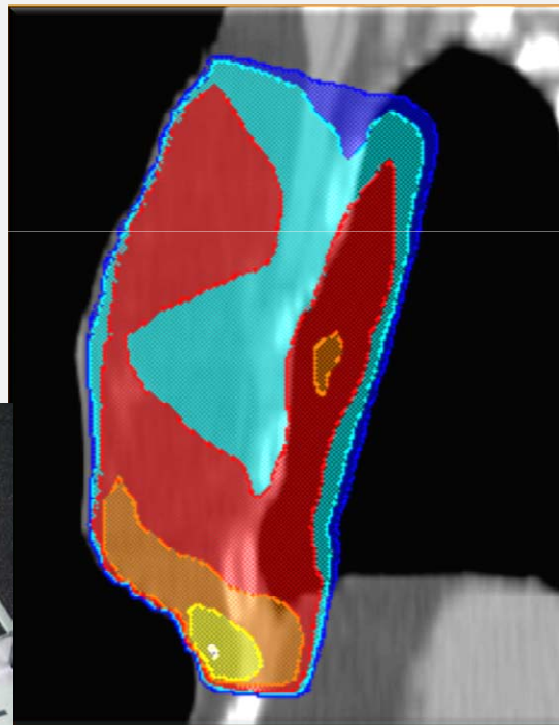


Rozkład dawki dla
pol otwartych

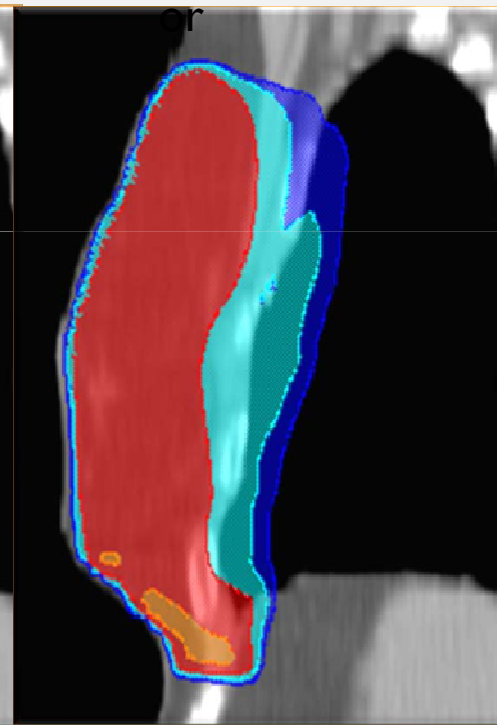


Filtry klinowe efektywne ale nie optymalne

kliny



kompensat

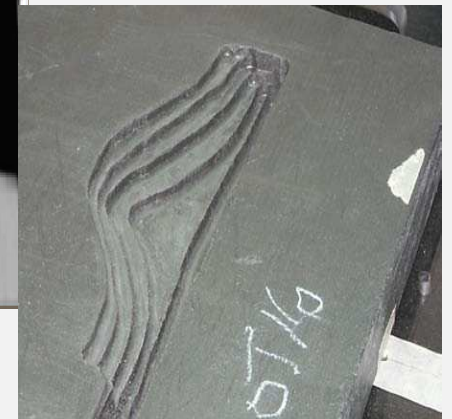


110%

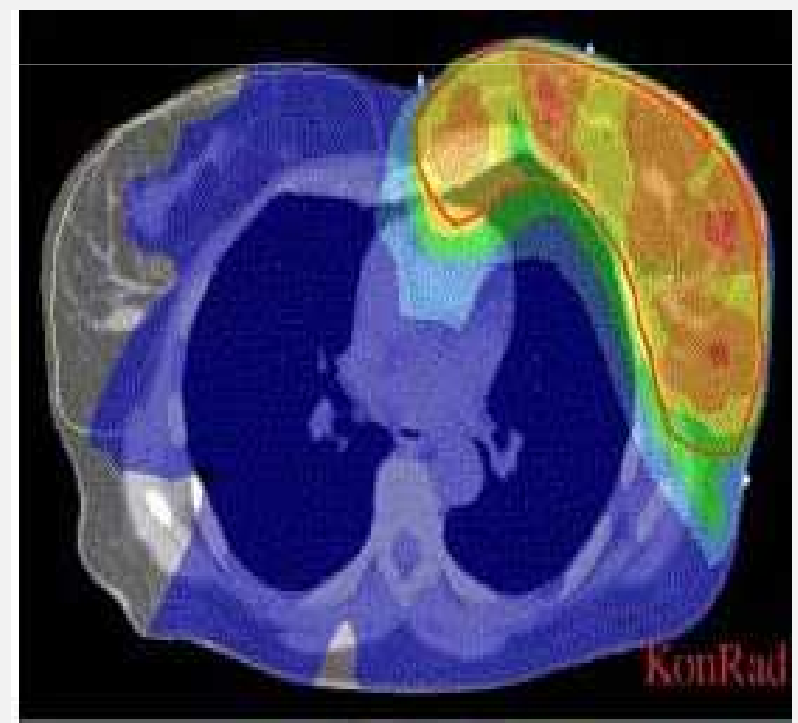
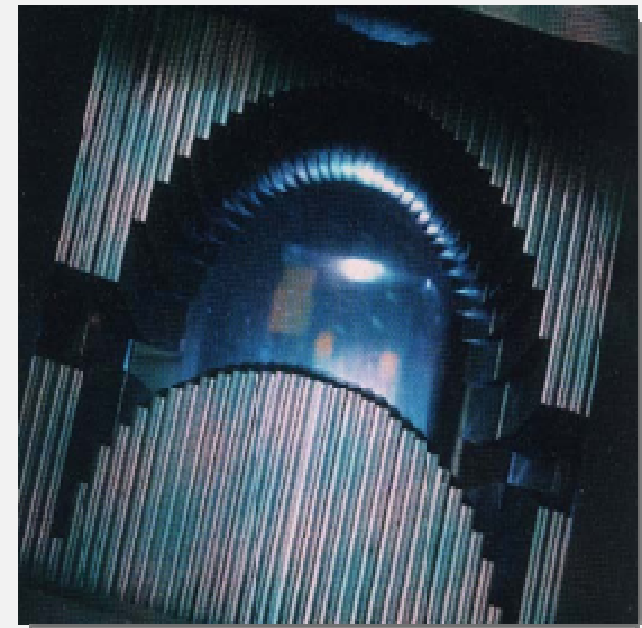
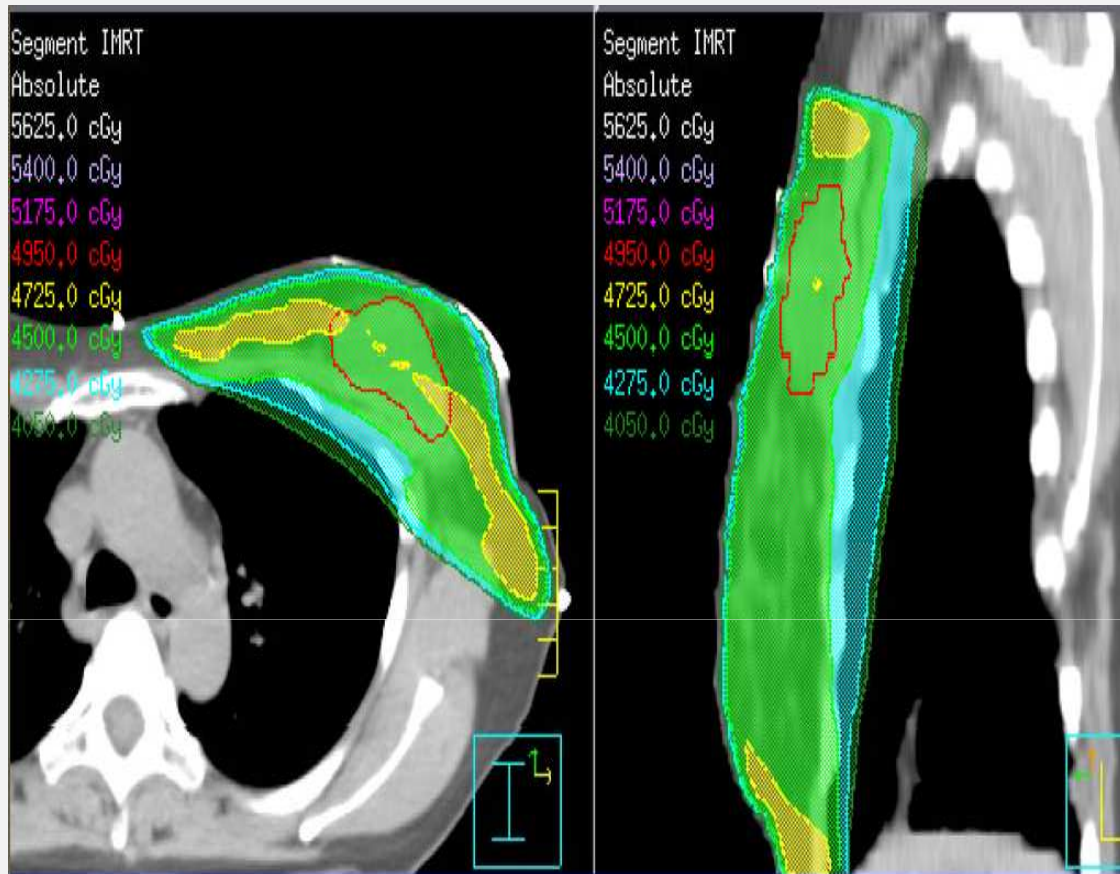
105%

100%

95%



Kompensatory optymalne ale nie efektywne

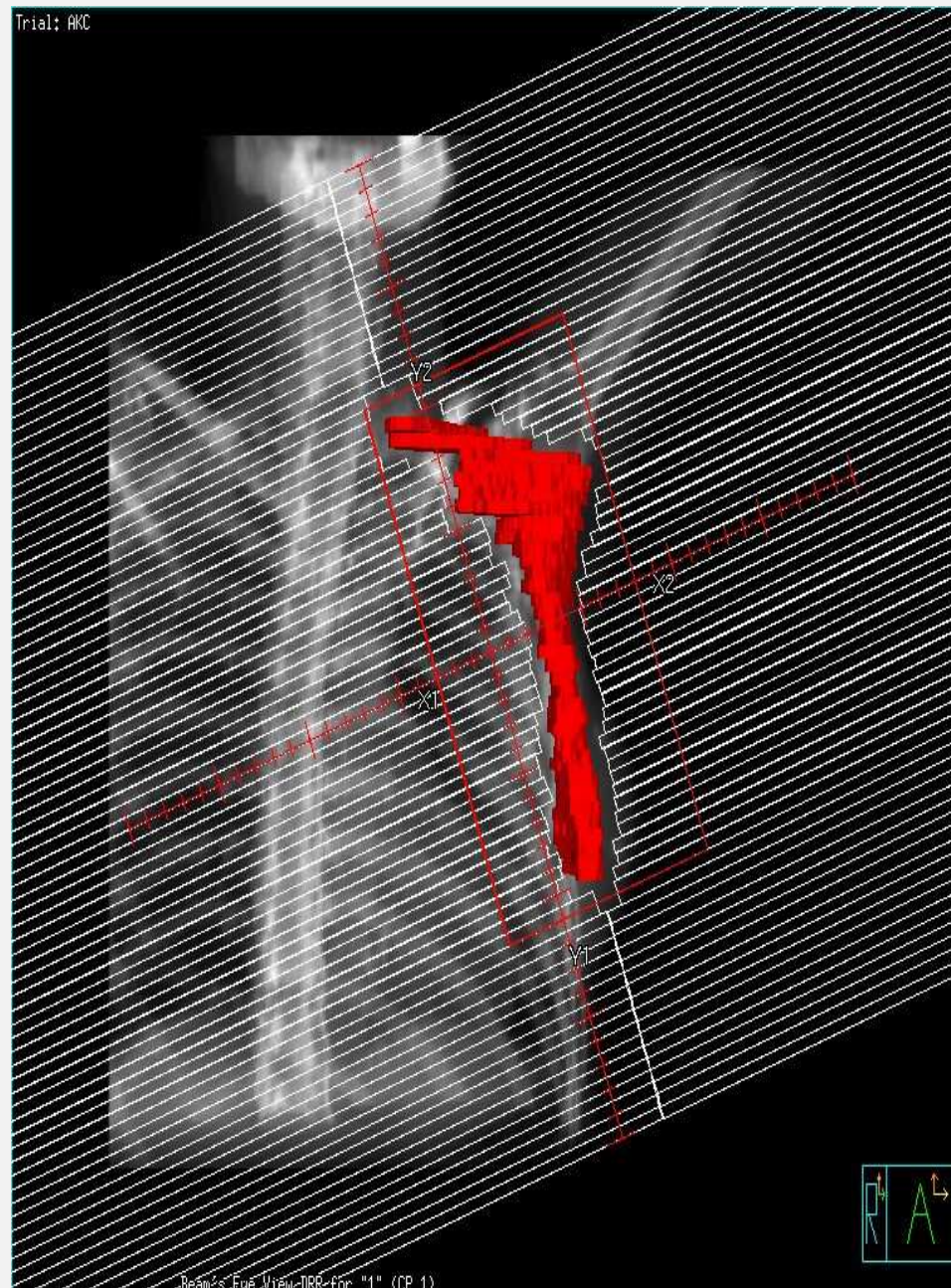


- Użycie kolimatora wielolistkowego jest skuteczniejsze od filtrów klinowych w podaniu jednorodnej dawki.

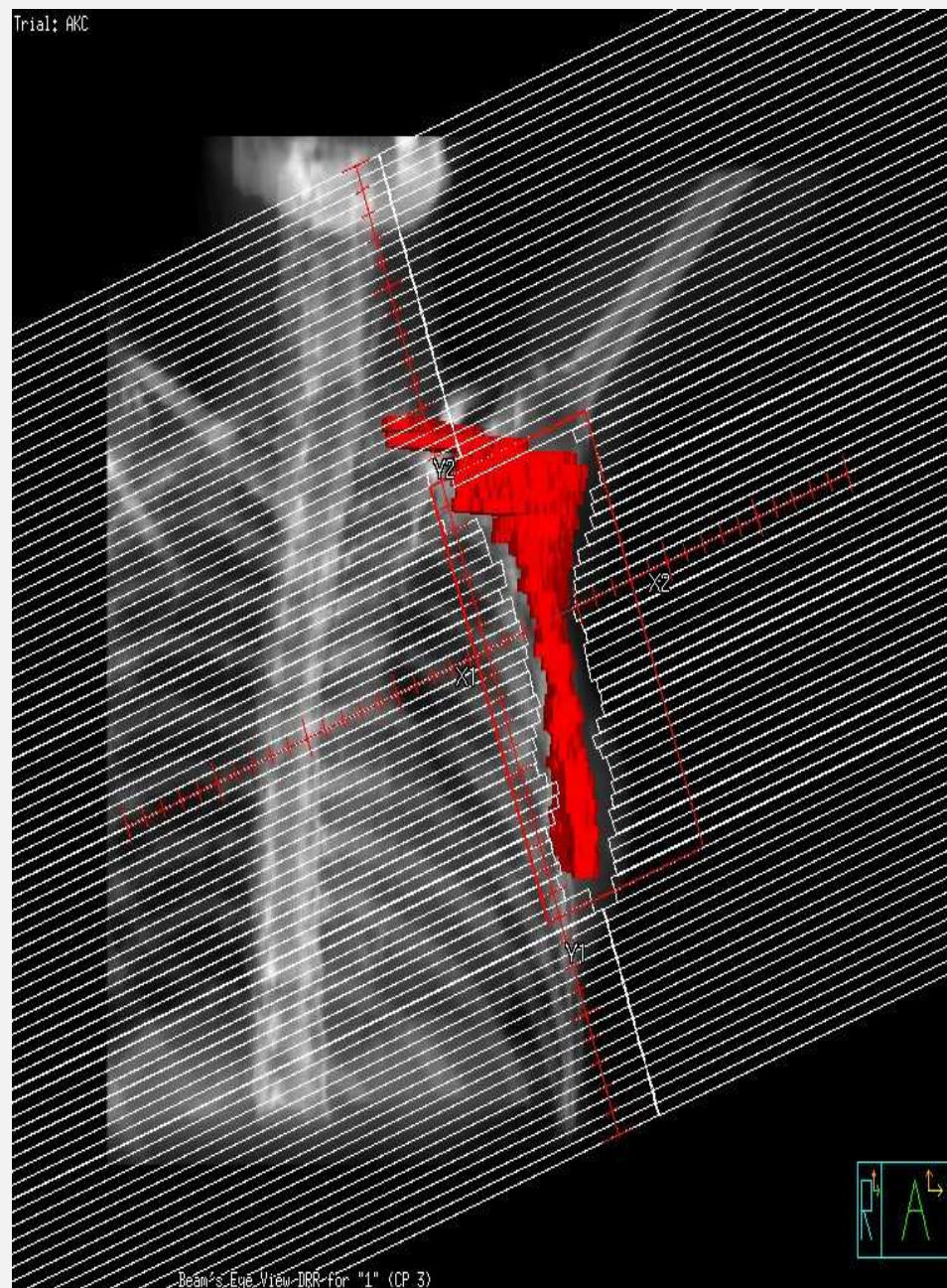
KOLIMATORY WIELOLISTKOWE



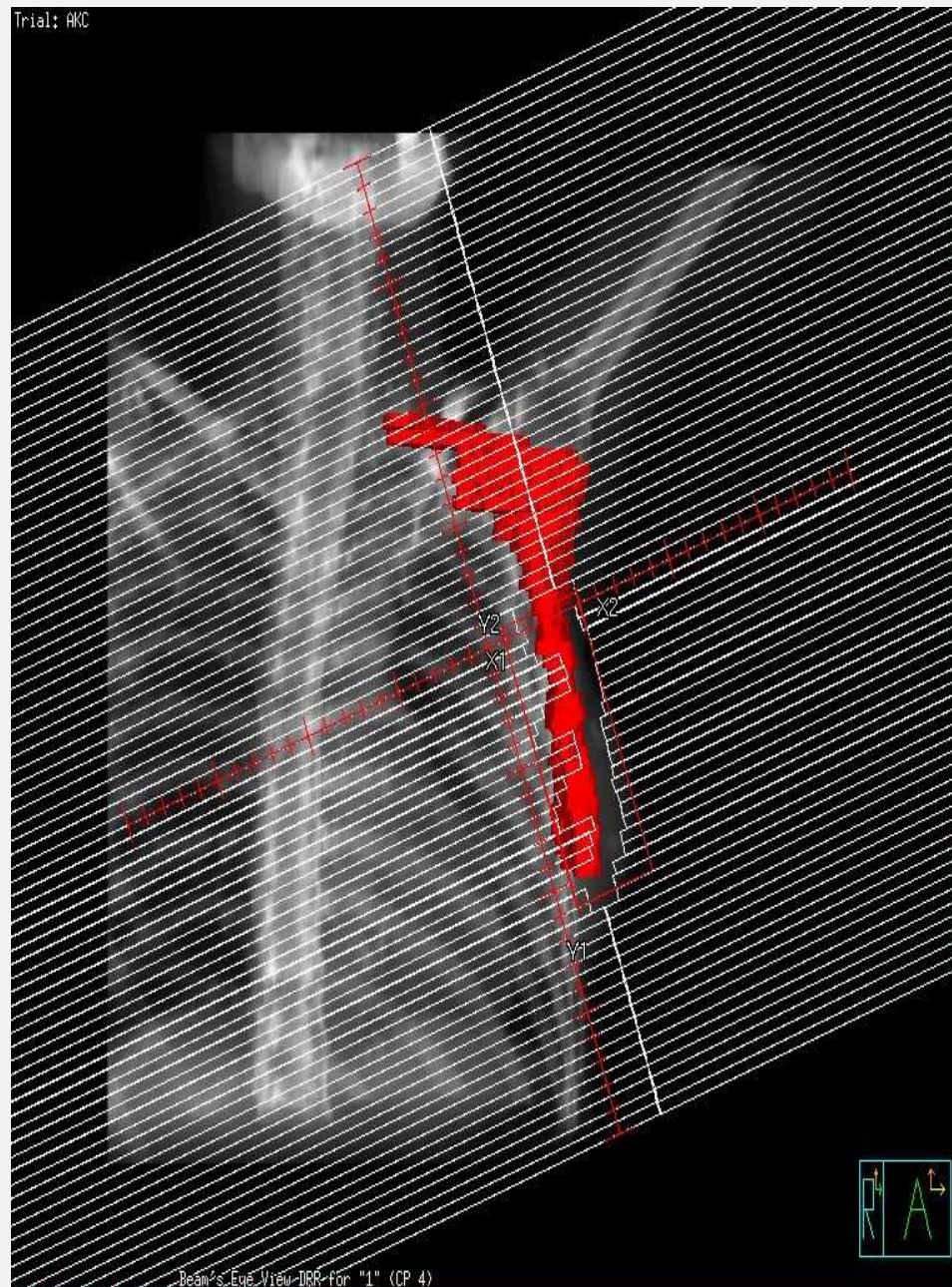
IMRT segment I



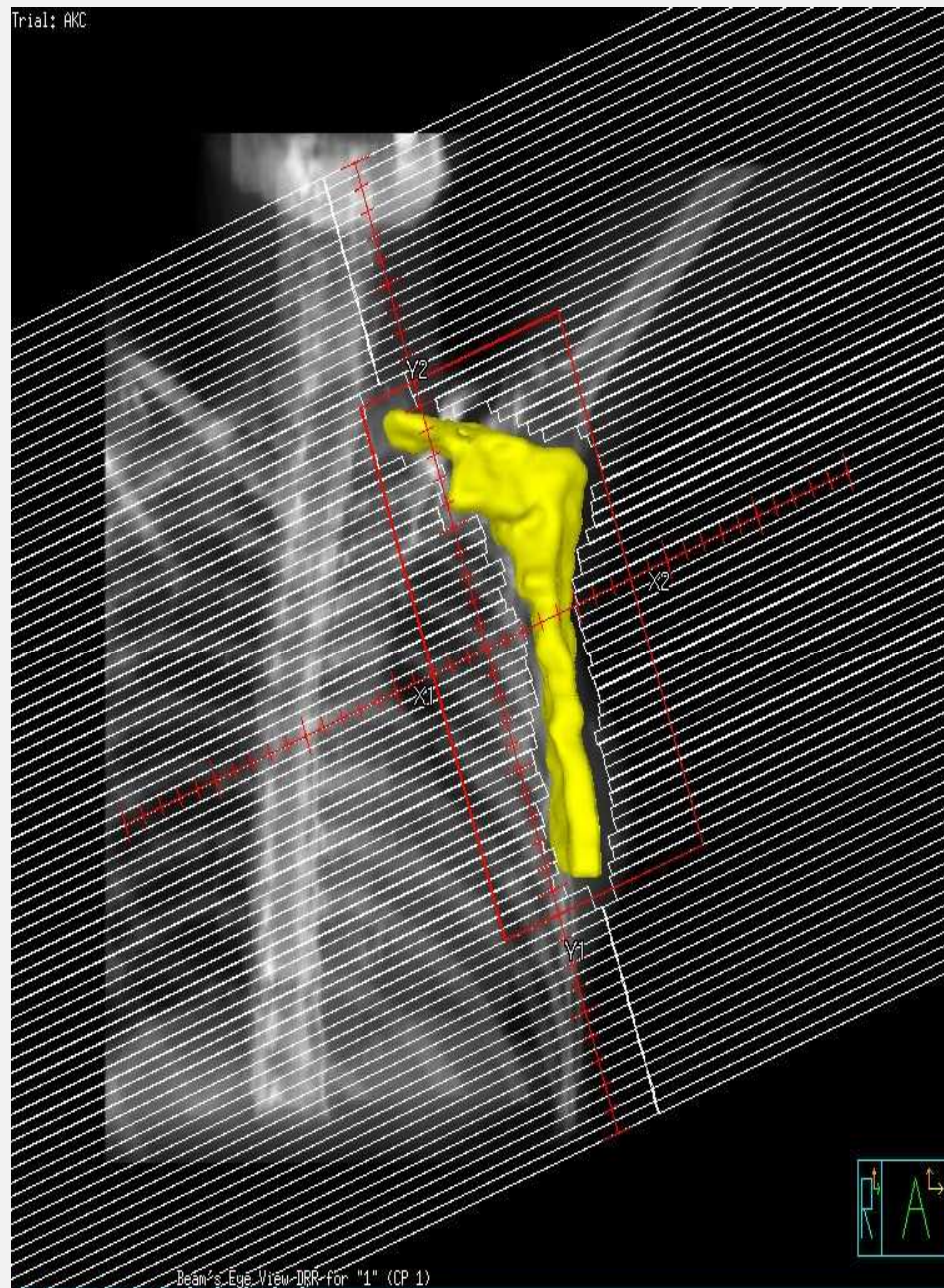
IMRT segment 2



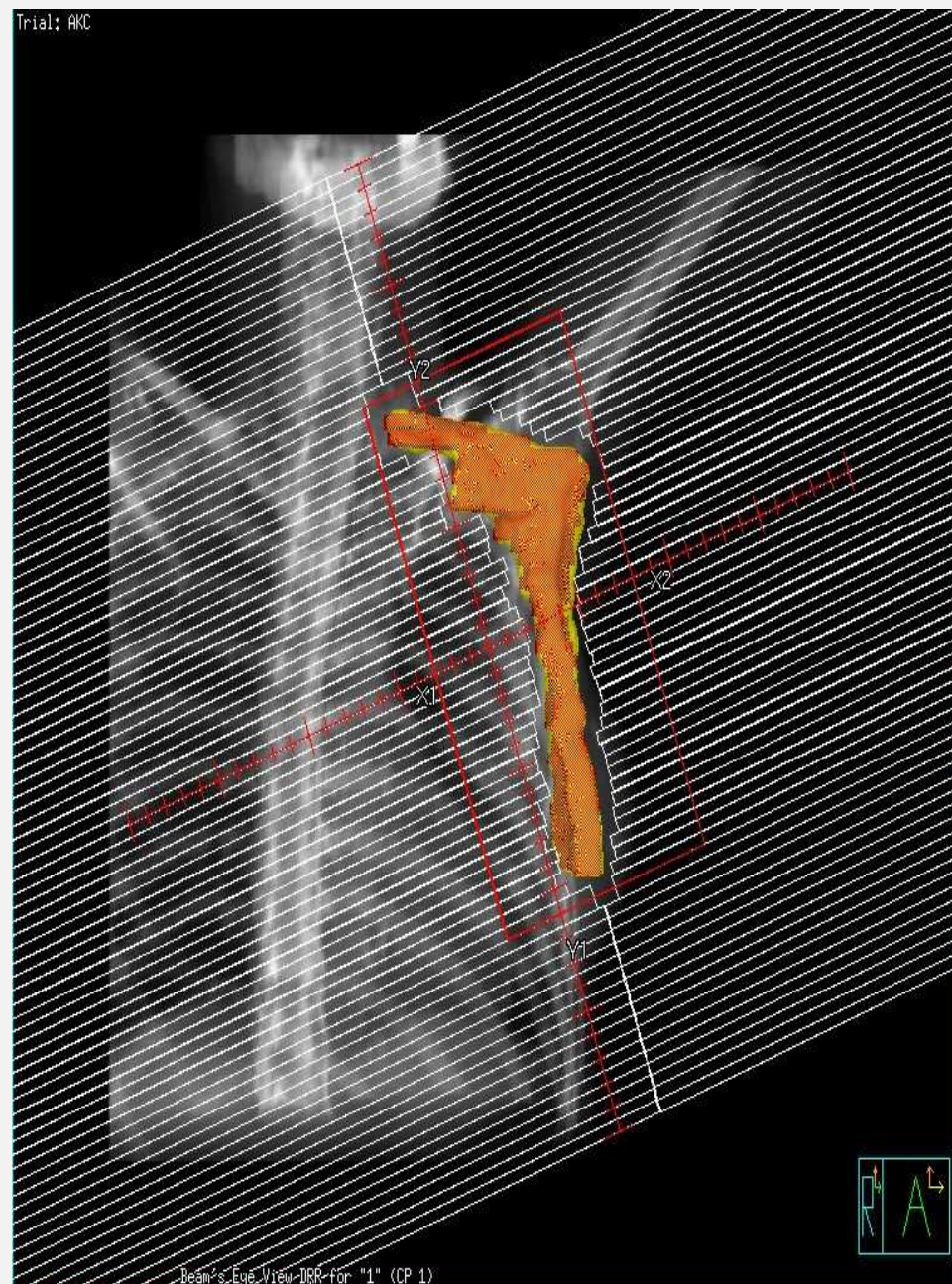
IMRT segment 3



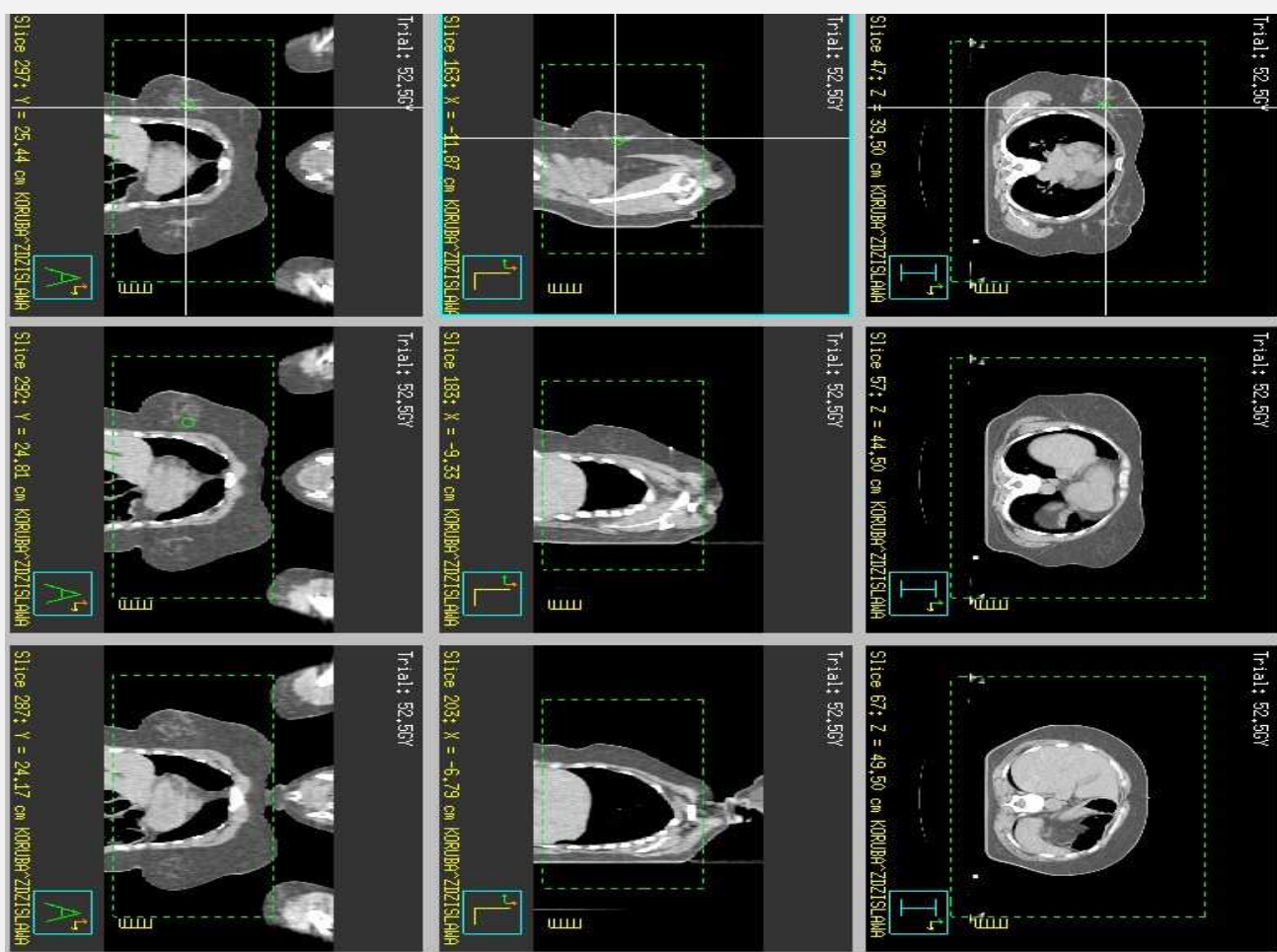
IMRT dawka w
projekcji BEV



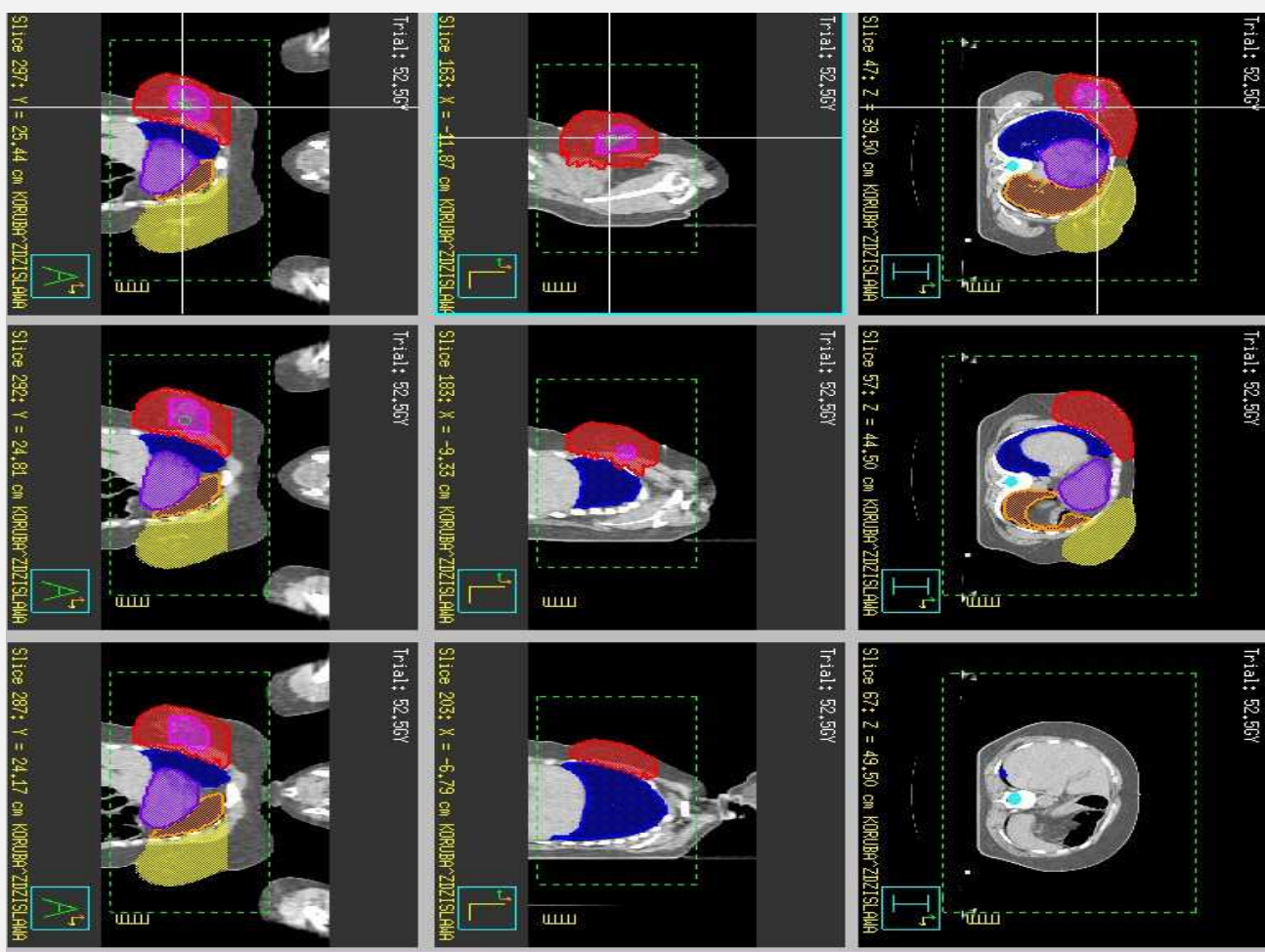
IMRT dawka w
projekcji BEV



OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA

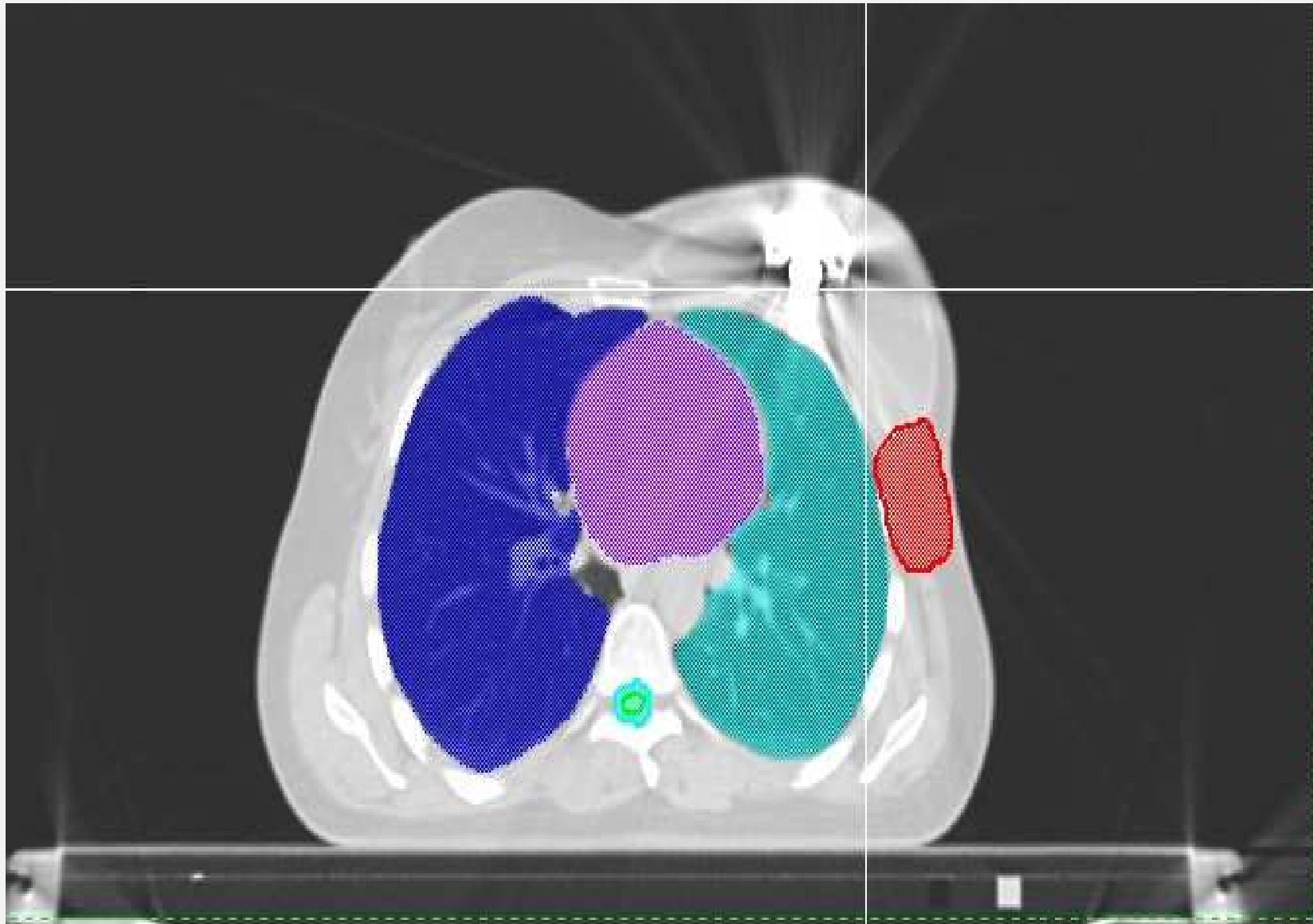


OBRAZY CT WYKORZYSTYWANE DO
PLANOWANIA LECZENIA

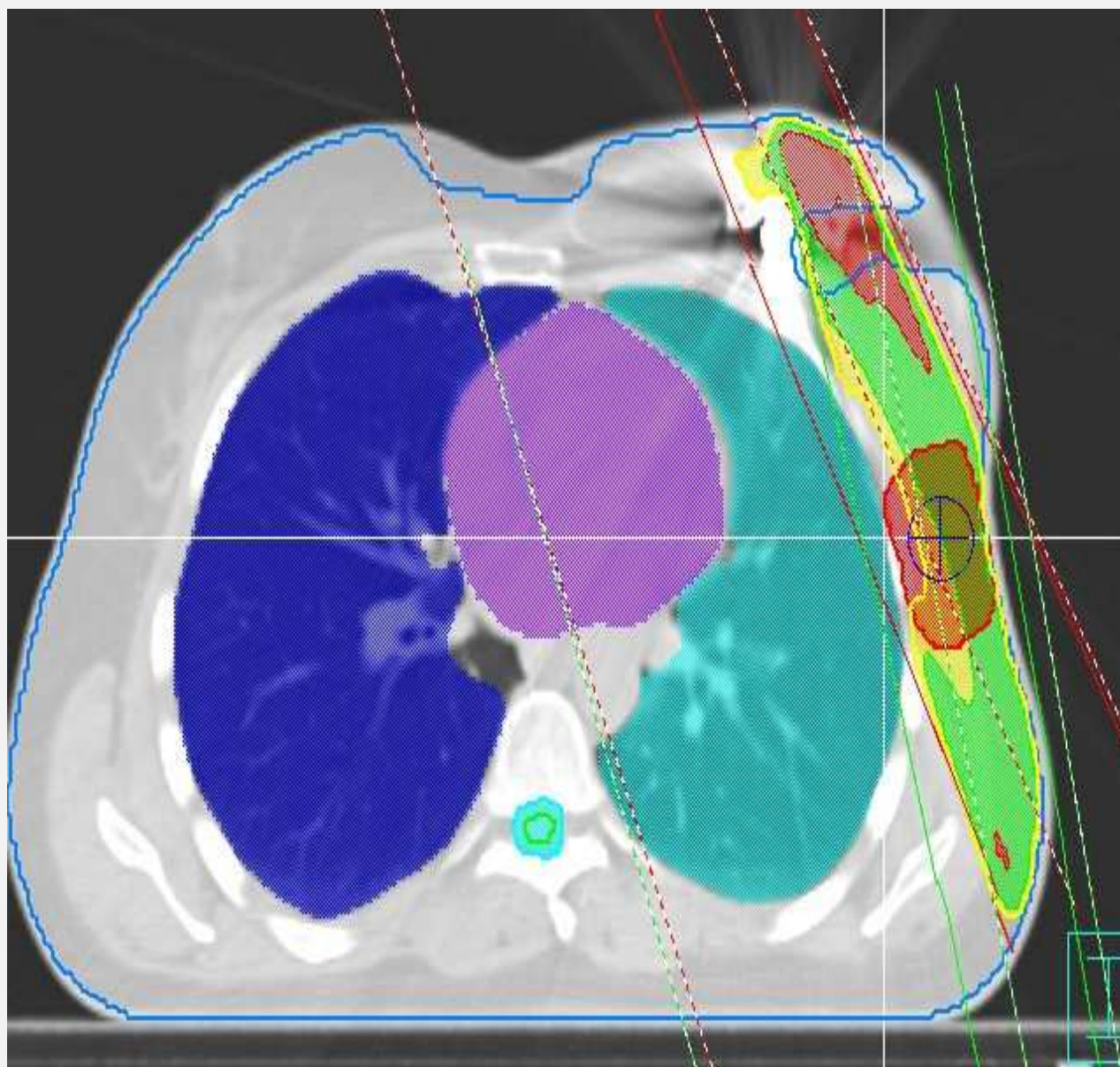


System planowania leczenia wykorzystuje
jednostki Hounsfielda do określenia
gęstości

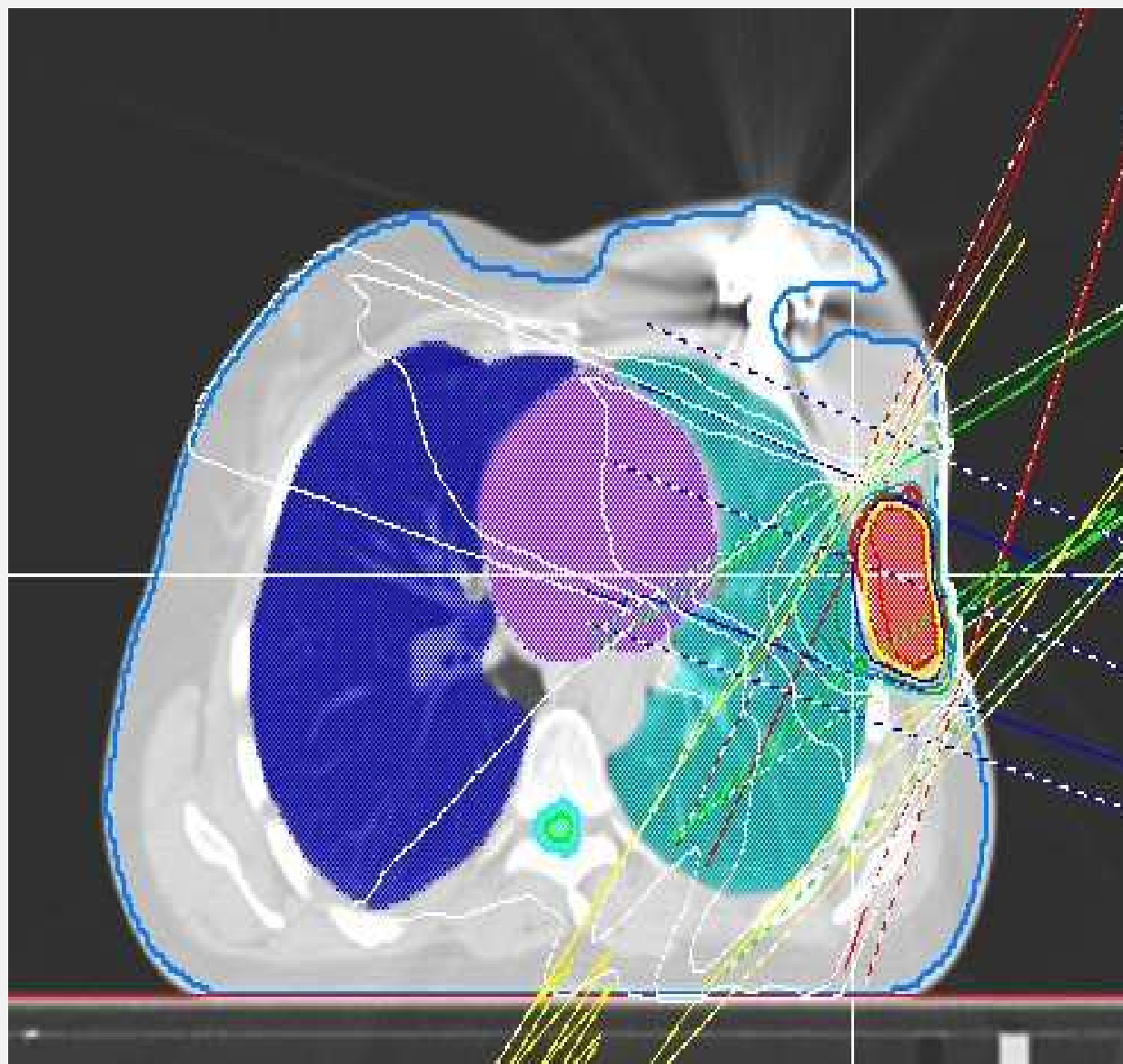
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PLANOWANIA LECZENIA Z ZAZNACZONYMI
OBSZARAMI ZAINTERESOWANIA



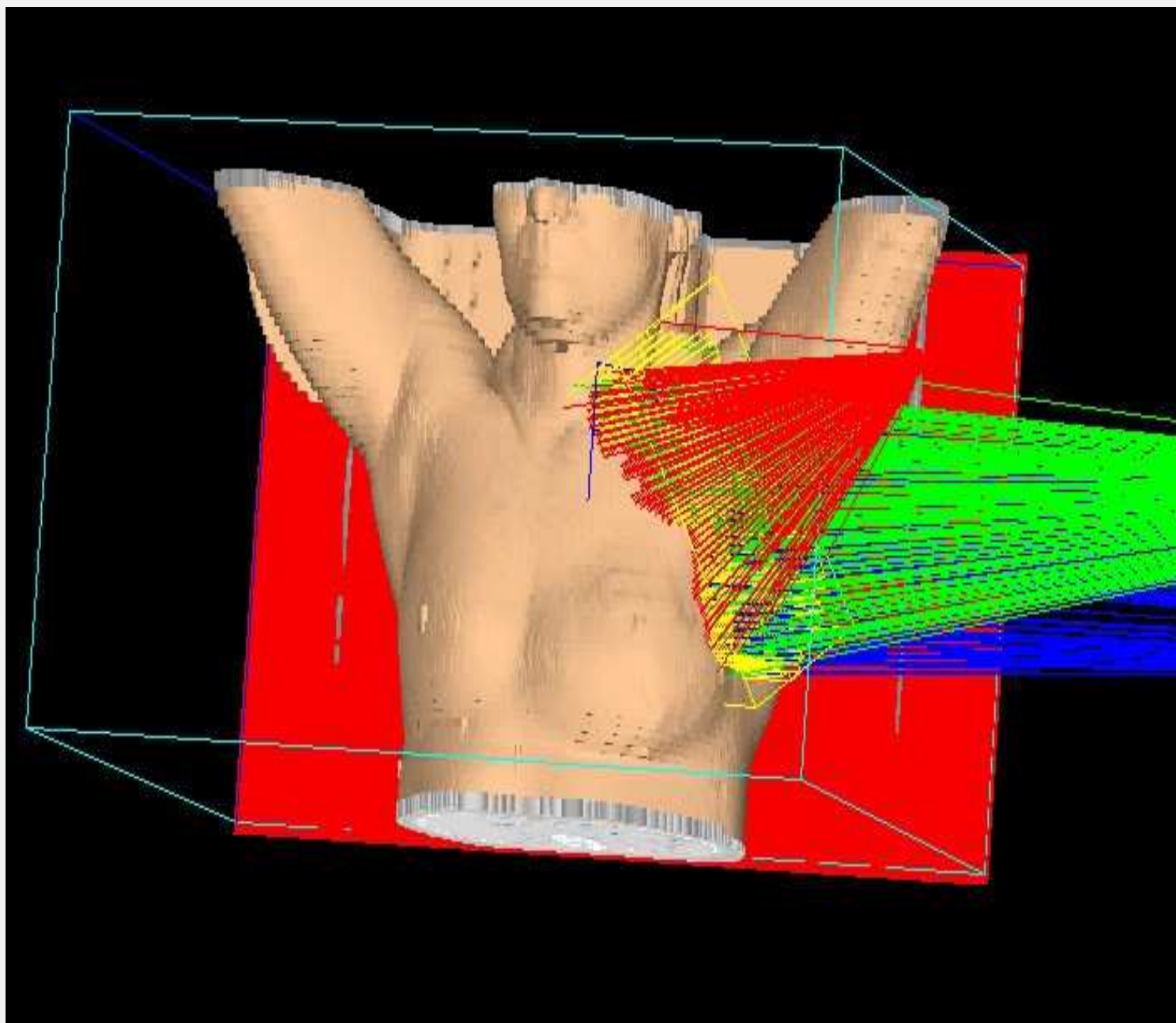
ROZKŁAD DAWKI



UKŁAD WIĄZEK DLA TECHNIKI IMRT



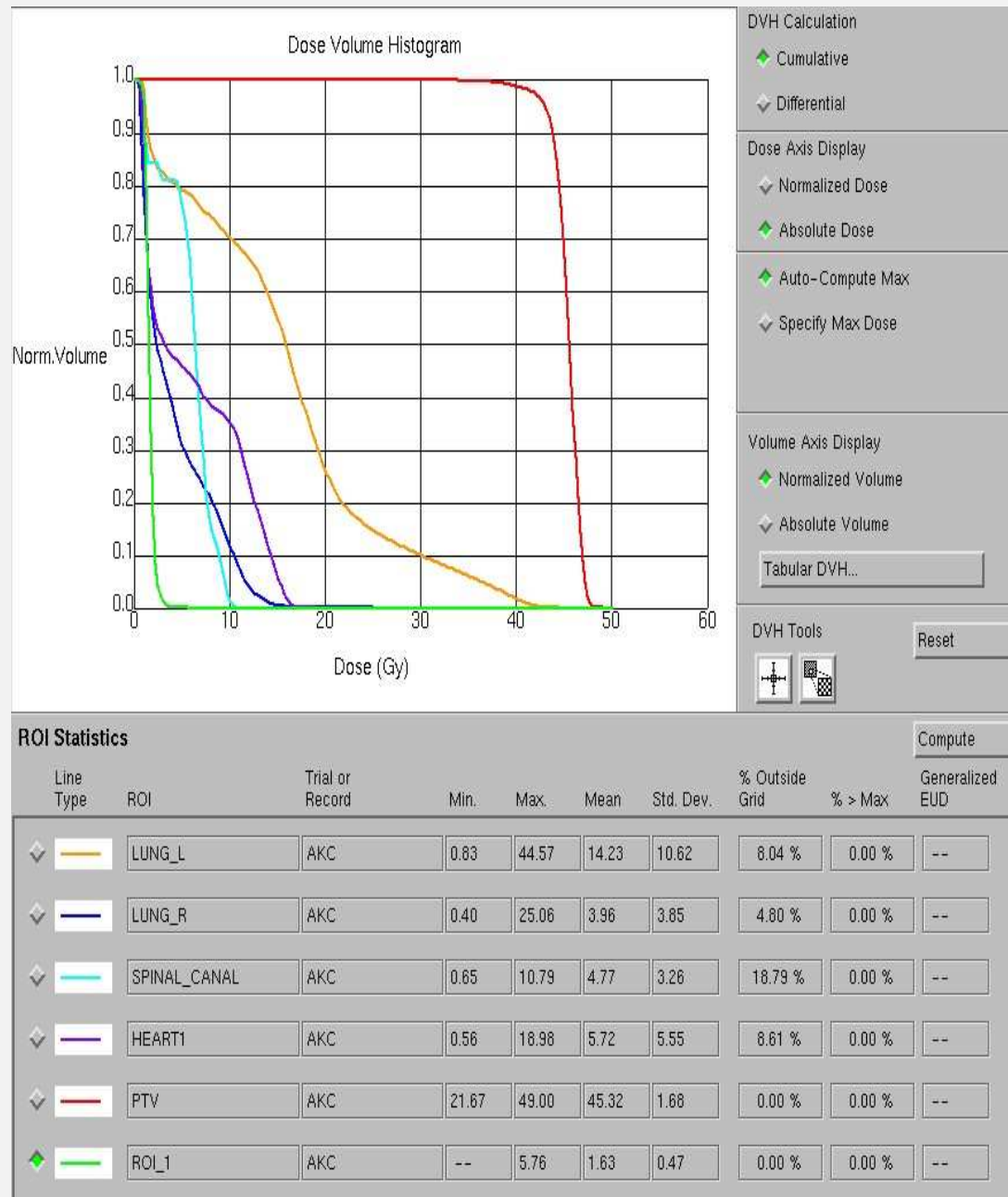
UKŁAD WIĄZEK DLA TECHNIK IMRT



ROZKLAD DAWKI DLA TECHNIKI IMRT



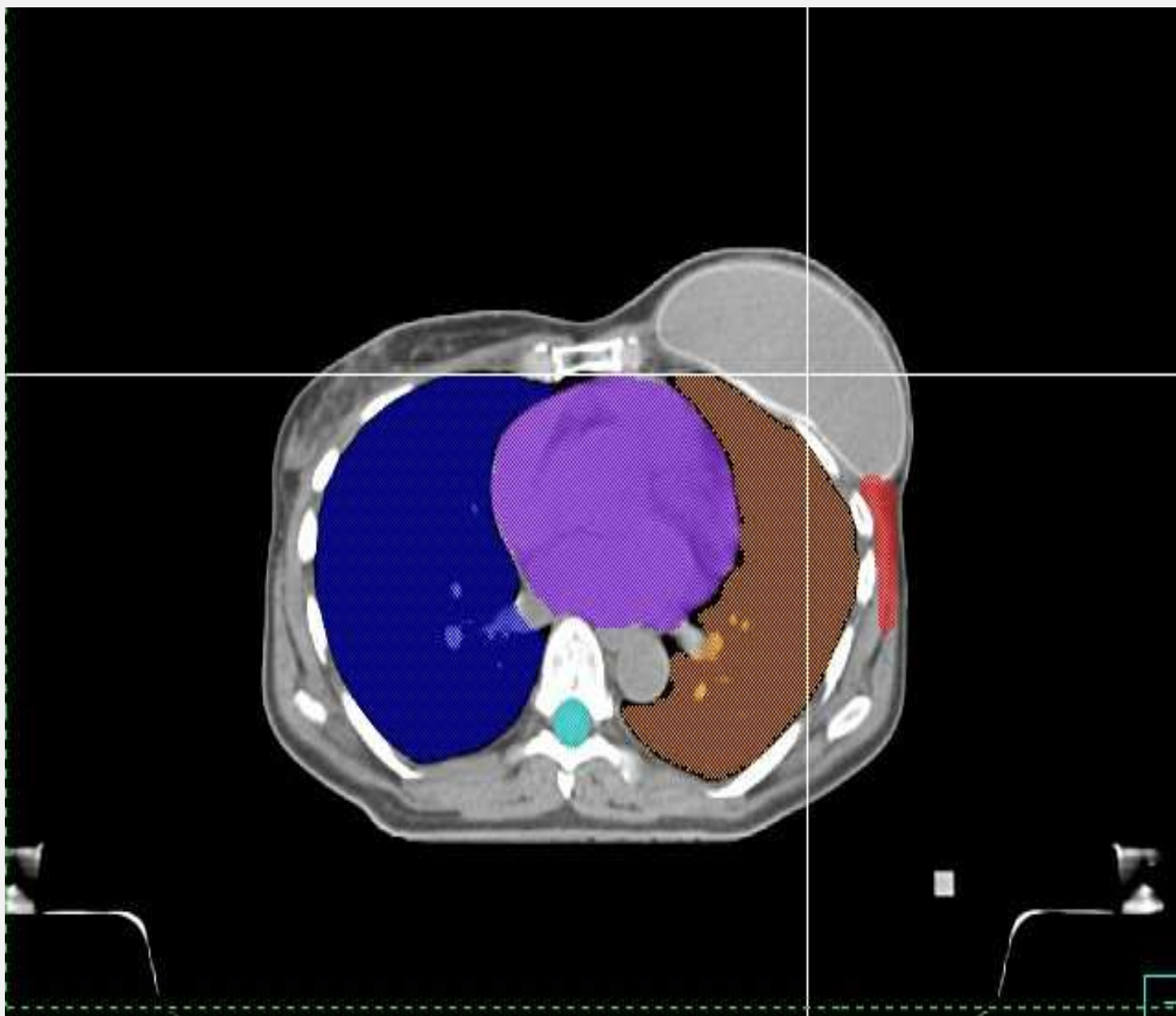
HISTOGRAM ROZKŁADU DAWKI



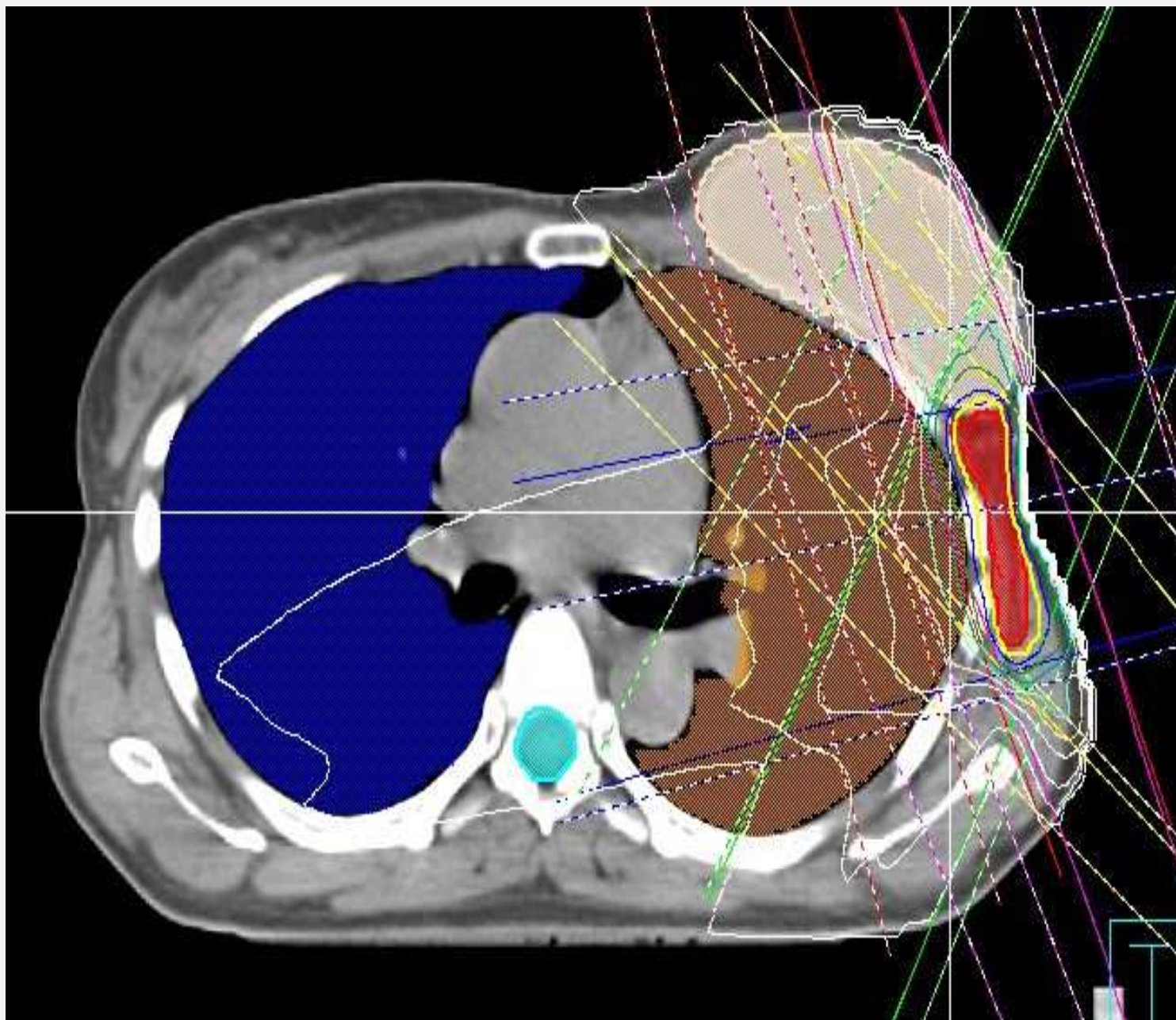
OBRAZY CT WYKORZYSTYWANE DO
PLANOWANIA LECZENIA



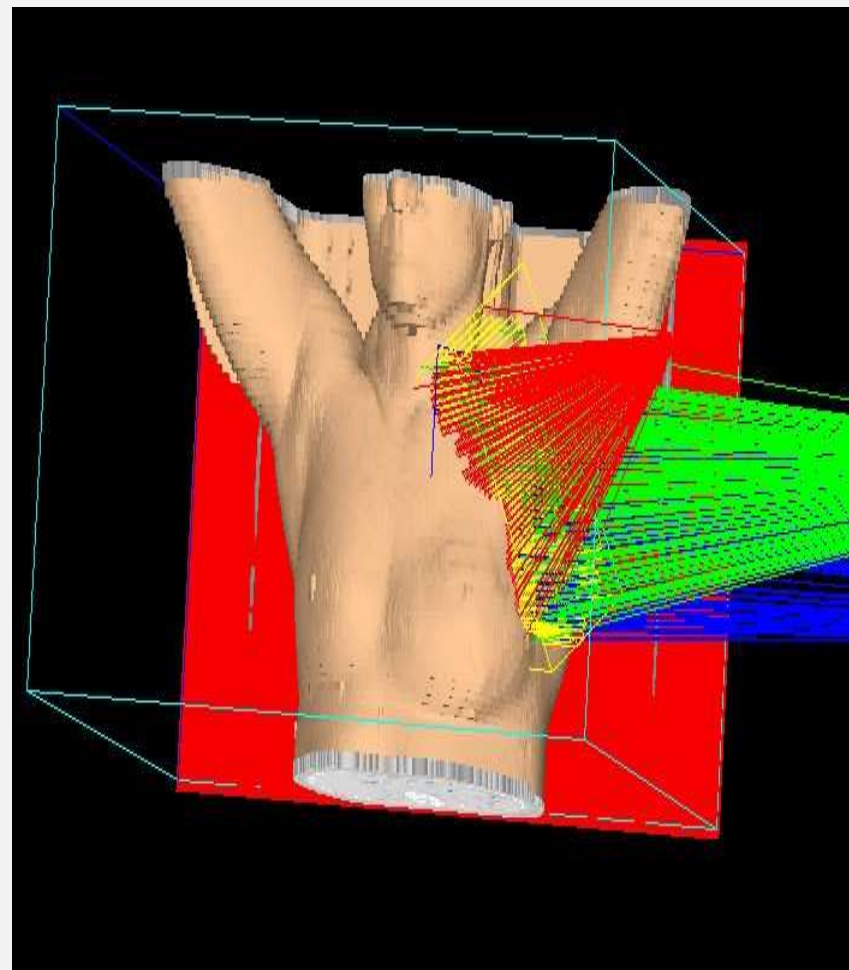
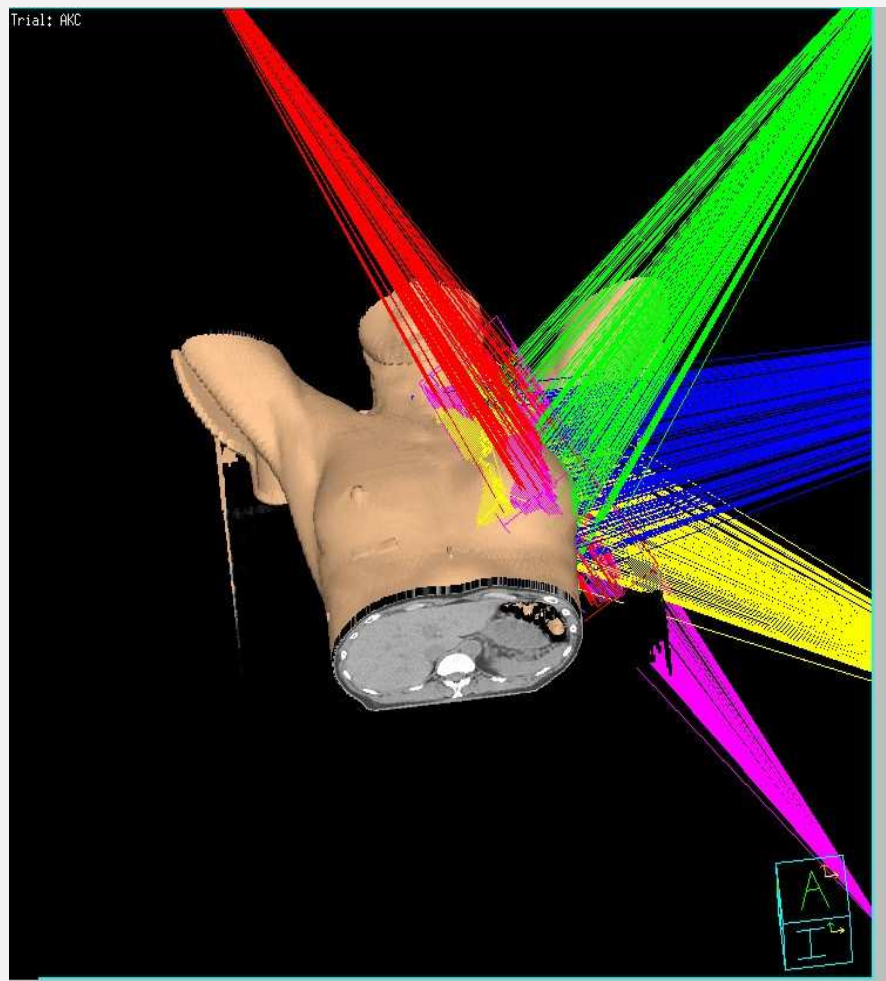
OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



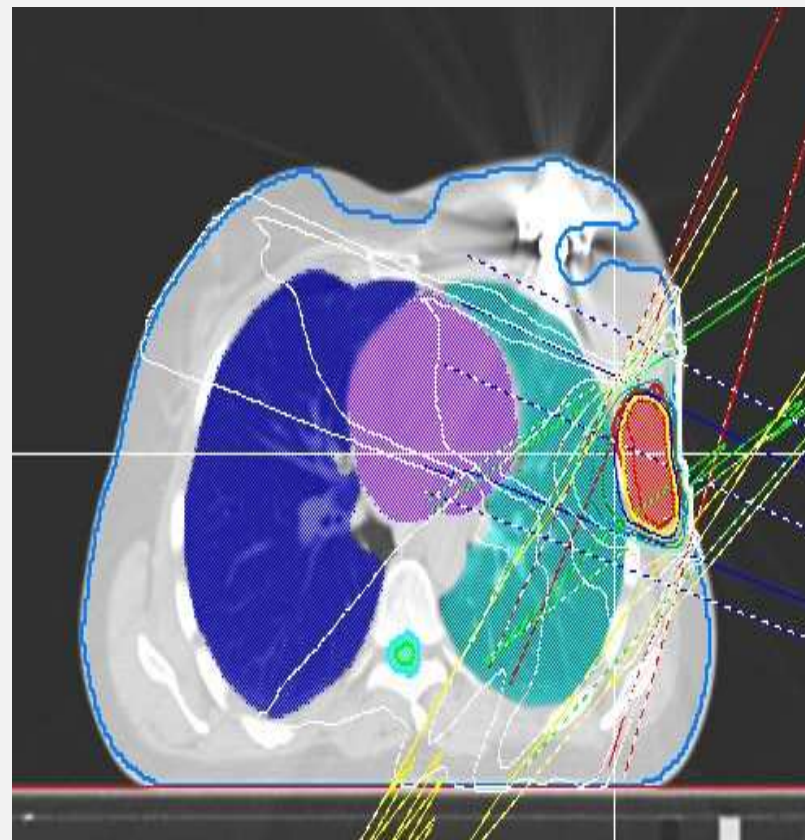
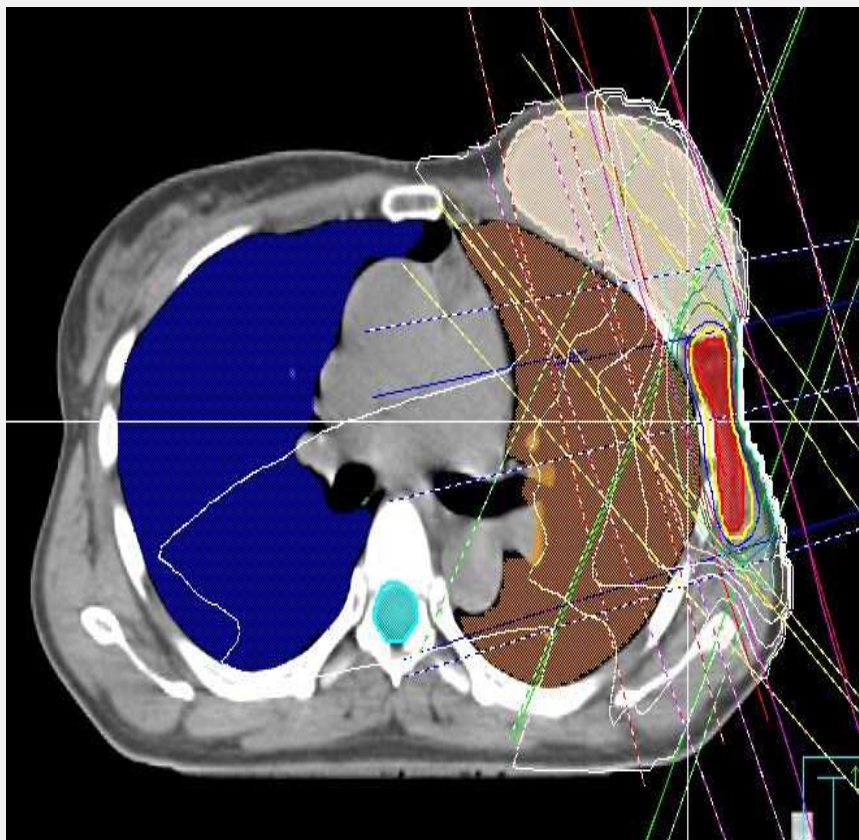
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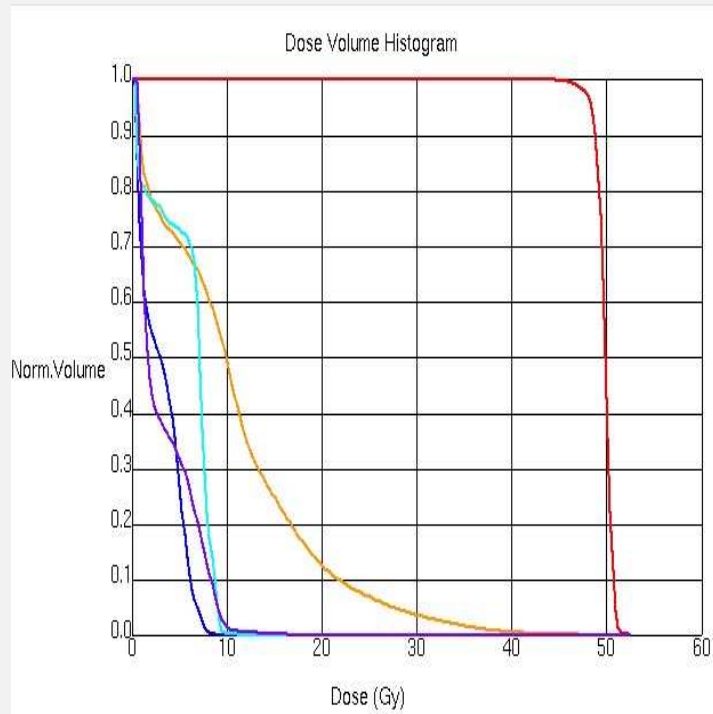
UKŁAD WIĄZEK DLA TECHNIK IMRT



UKŁAD WIĄZEK DLA TECHNIK IMRT



HISTOGRAMY ROZKŁADU DAWEK



DVH Calculation

- Cumulative
- Differential

Dose Axis Display

- Normalized Dose
- Absolute Dose
- Auto-Compute Max
- Specify Max Dose

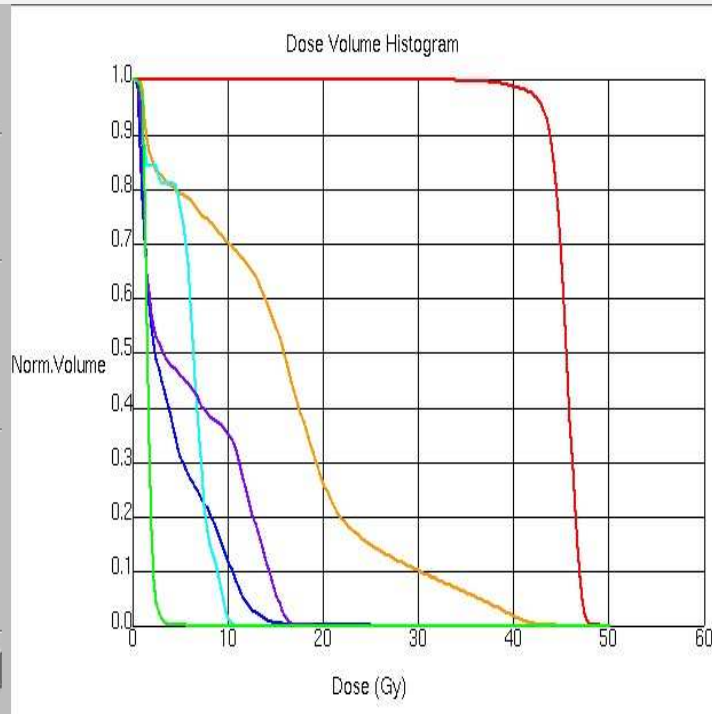
Volume Axis Display

- Normalized Volume
- Absolute Volume

Tabular DVH...

DVH Tools

Reset



DVH Calculation

- Cumulative
- Differential

Dose Axis Display

- Normalized Dose
- Absolute Dose
- Auto-Compute Max
- Specify Max Dose

Volume Axis Display

- Normalized Volume
- Absolute Volume

Tabular DVH...

DVH Tools

Reset

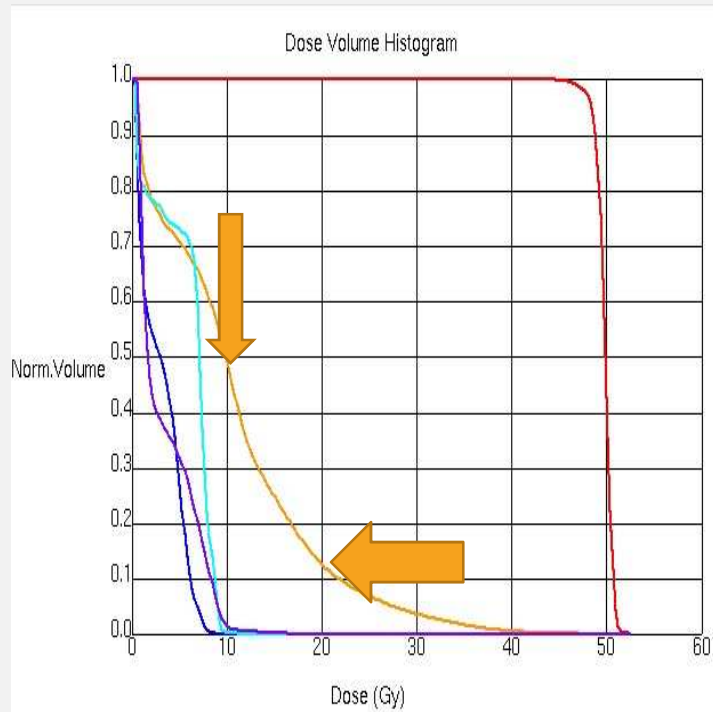
ROI Statistics

Line Type	ROI	Trial or Record	Min.	Max.	Mean	Std. Dev.	% Outside Grid	% > Max	Generalized EUD
<input type="checkbox"/>	ptv	AKC	15.40	52.32	49.74	0.94	0.00 %	0.00 %	--
<input type="checkbox"/>	LUNG_L	AKC	0.38	47.10	10.54	8.44	0.79 %	0.00 %	--
<input type="checkbox"/>	LUNG_R	AKC	0.16	8.88	3.08	2.30	0.20 %	0.00 %	--
<input type="checkbox"/>	SPINAL_CANAL	AKC	0.28	11.21	5.54	3.19	4.81 %	0.00 %	--
<input checked="" type="checkbox"/>	HEART1	AKC	0.42	16.48	3.45	3.07	0.00 %	0.00 %	--

ROI Statistics

Line Type	ROI	Trial or Record	Min.	Max.	Mean	Std. Dev.	% Outside Grid	% > Max	Generalized EUD
<input type="checkbox"/>	LUNG_L	AKC	0.83	44.57	14.23	10.62	8.04 %	0.00 %	--
<input type="checkbox"/>	LUNG_R	AKC	0.40	25.06	3.96	3.85	4.80 %	0.00 %	--
<input type="checkbox"/>	SPINAL_CANAL	AKC	0.65	10.79	4.77	3.26	18.79 %	0.00 %	--
<input type="checkbox"/>	HEART1	AKC	0.56	18.98	5.72	5.55	8.61 %	0.00 %	--
<input type="checkbox"/>	PTV	AKC	21.67	49.00	45.32	1.68	0.00 %	0.00 %	--
<input checked="" type="checkbox"/>	ROI_1	AKC	--	5.76	1.63	0.47	0.00 %	0.00 %	--

HISTOGRAMY ROZKŁADU DAWEK



DVH Calculation

- Cumulative
- Differential

Dose Axis Display

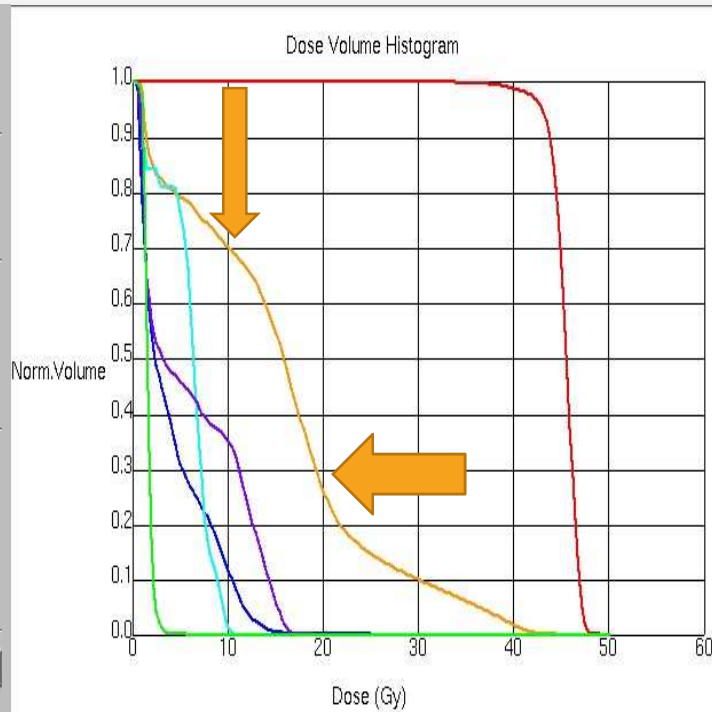
- Normalized Dose
- Absolute Dose
- Auto-Compute Max
- Specify Max Dose

Volume Axis Display

- Normalized Volume
- Absolute Volume

Tabular DVH...

DVH Tools



DVH Calculation

- Cumulative
- Differential

Dose Axis Display

- Normalized Dose
- Absolute Dose
- Auto-Compute Max
- Specify Max Dose

Volume Axis Display

- Normalized Volume
- Absolute Volume

Tabular DVH...

DVH Tools

ROI Statistics

Line Type	ROI	Trial or Record	Min.	Max.	Mean	Std. Dev.	% Outside Grid	% > Max	Generalized EUD
<input type="checkbox"/>	ptv	AKC	15.40	52.32	49.74	0.94	0.00 %	0.00 %	--
<input type="checkbox"/>	LUNG_L	AKC	0.38	47.10	10.54	8.44	0.79 %	0.00 %	--
<input type="checkbox"/>	LUNG_R	AKC	0.16	8.88	3.08	2.30	0.20 %	0.00 %	--
<input type="checkbox"/>	SPINAL_CANAL	AKC	0.28	11.21	5.54	3.19	4.81 %	0.00 %	--
<input checked="" type="checkbox"/>	HEART1	AKC	0.42	16.48	3.45	3.07	0.00 %	0.00 %	--

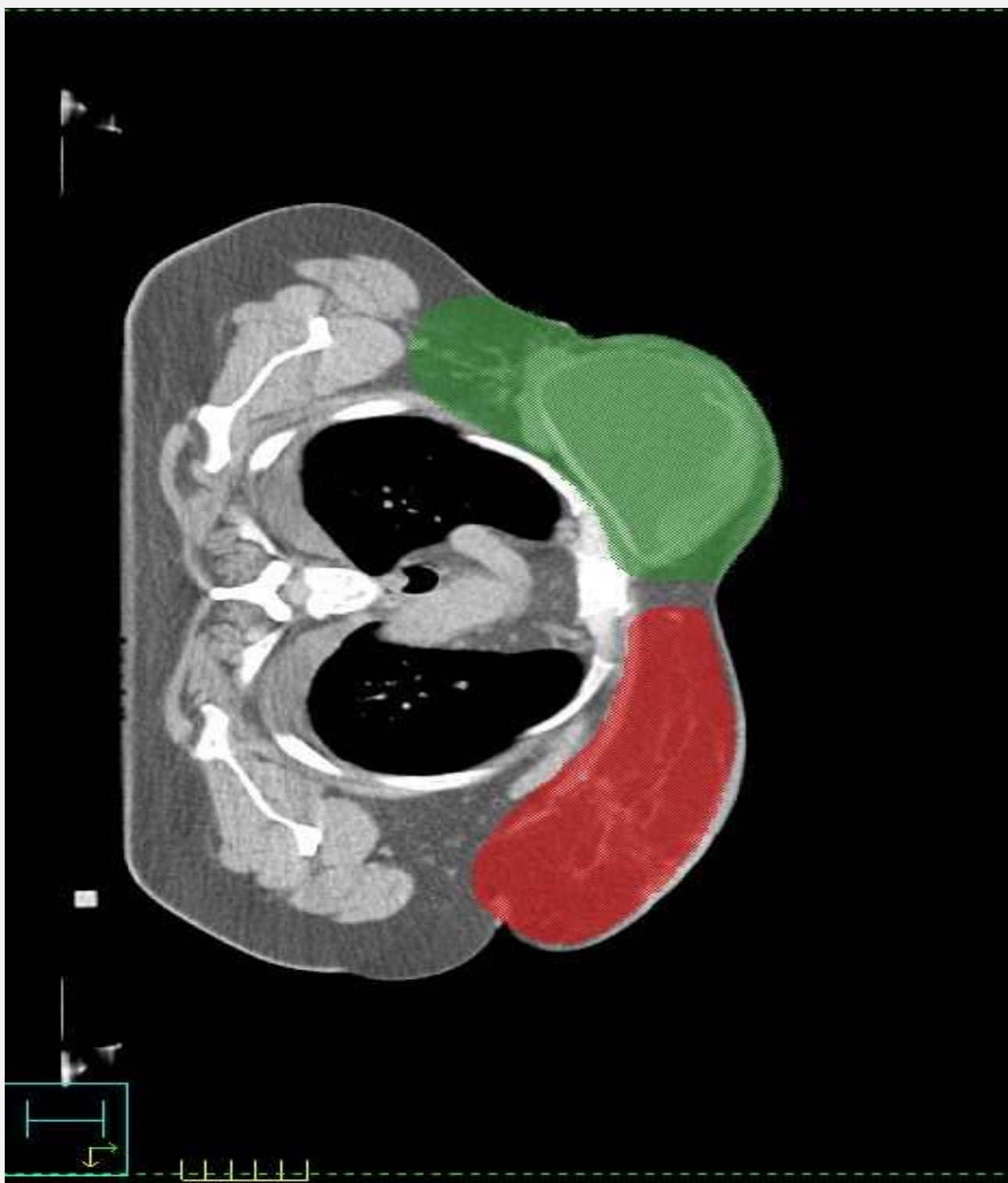
ROI Statistics

Line Type	ROI	Trial or Record	Min.	Max.	Mean	Std. Dev.	% Outside Grid	% > Max	Generalized EUD
<input type="checkbox"/>	LUNG_L	AKC	0.83	44.57	14.23	10.62	8.04 %	0.00 %	--
<input type="checkbox"/>	LUNG_R	AKC	0.40	25.06	3.96	3.85	4.80 %	0.00 %	--
<input type="checkbox"/>	SPINAL_CANAL	AKC	0.65	10.79	4.77	3.26	18.79 %	0.00 %	--
<input type="checkbox"/>	HEART1	AKC	0.56	18.98	5.72	5.55	8.61 %	0.00 %	--
<input type="checkbox"/>	PTV	AKC	21.67	49.00	45.32	1.68	0.00 %	0.00 %	--

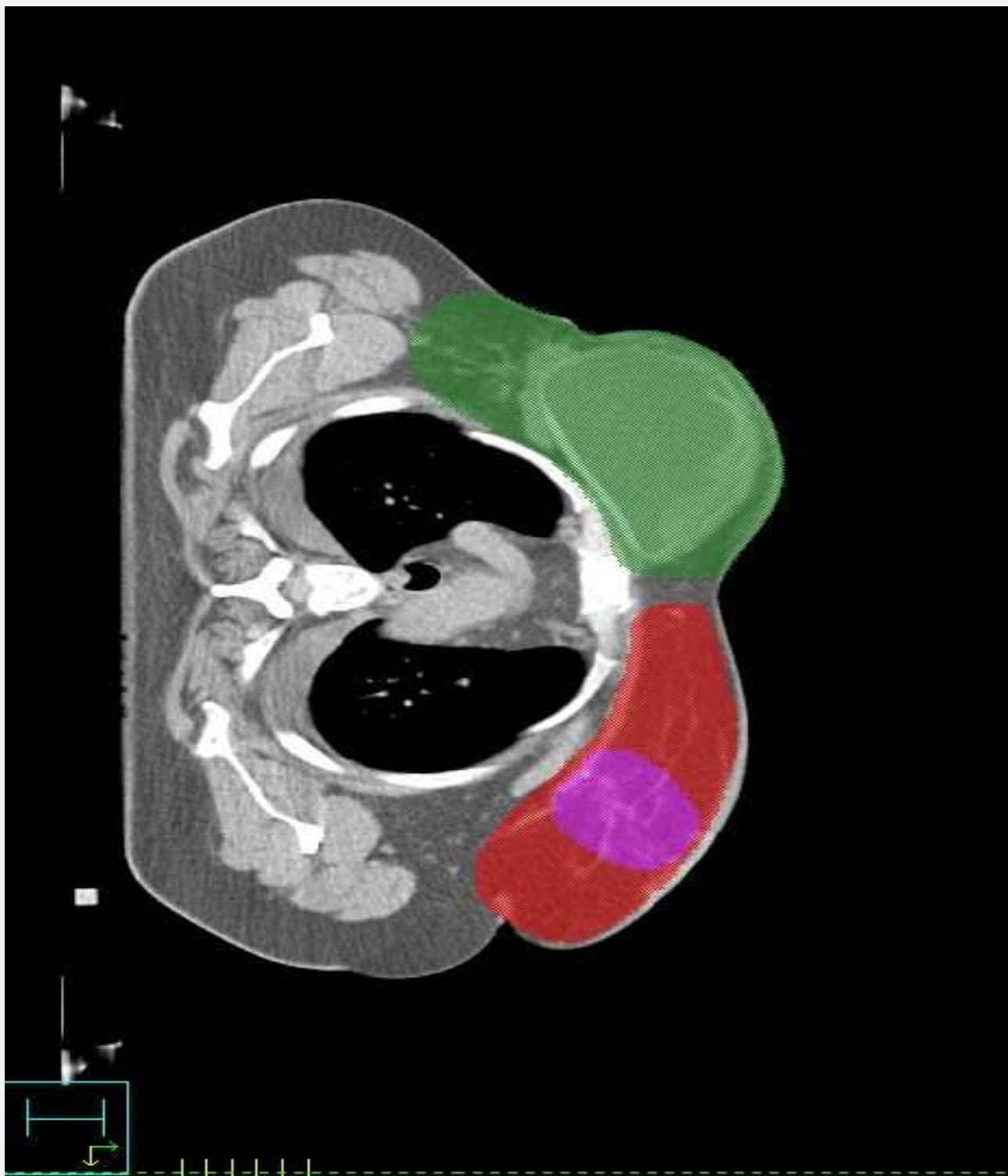
OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



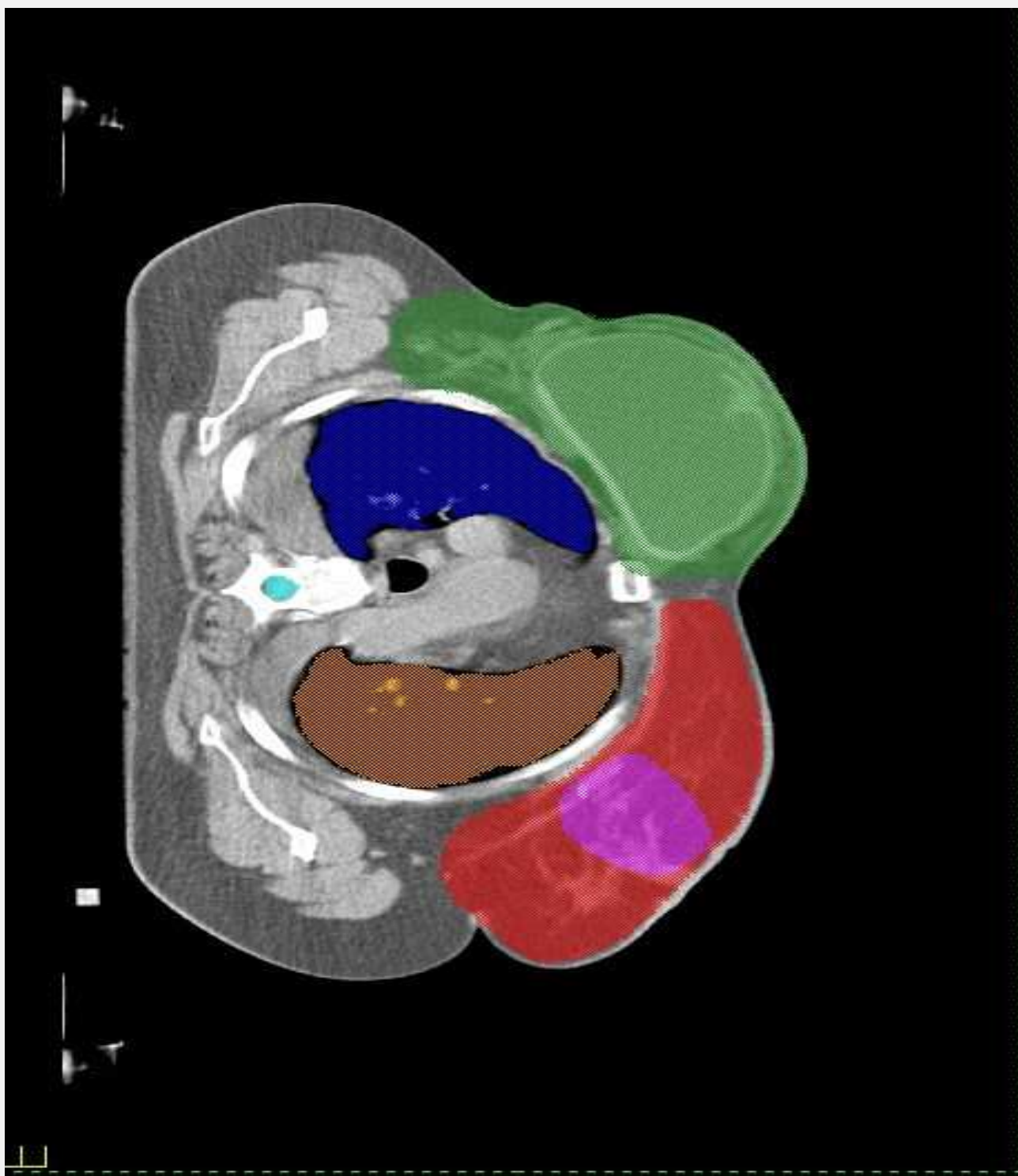
OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



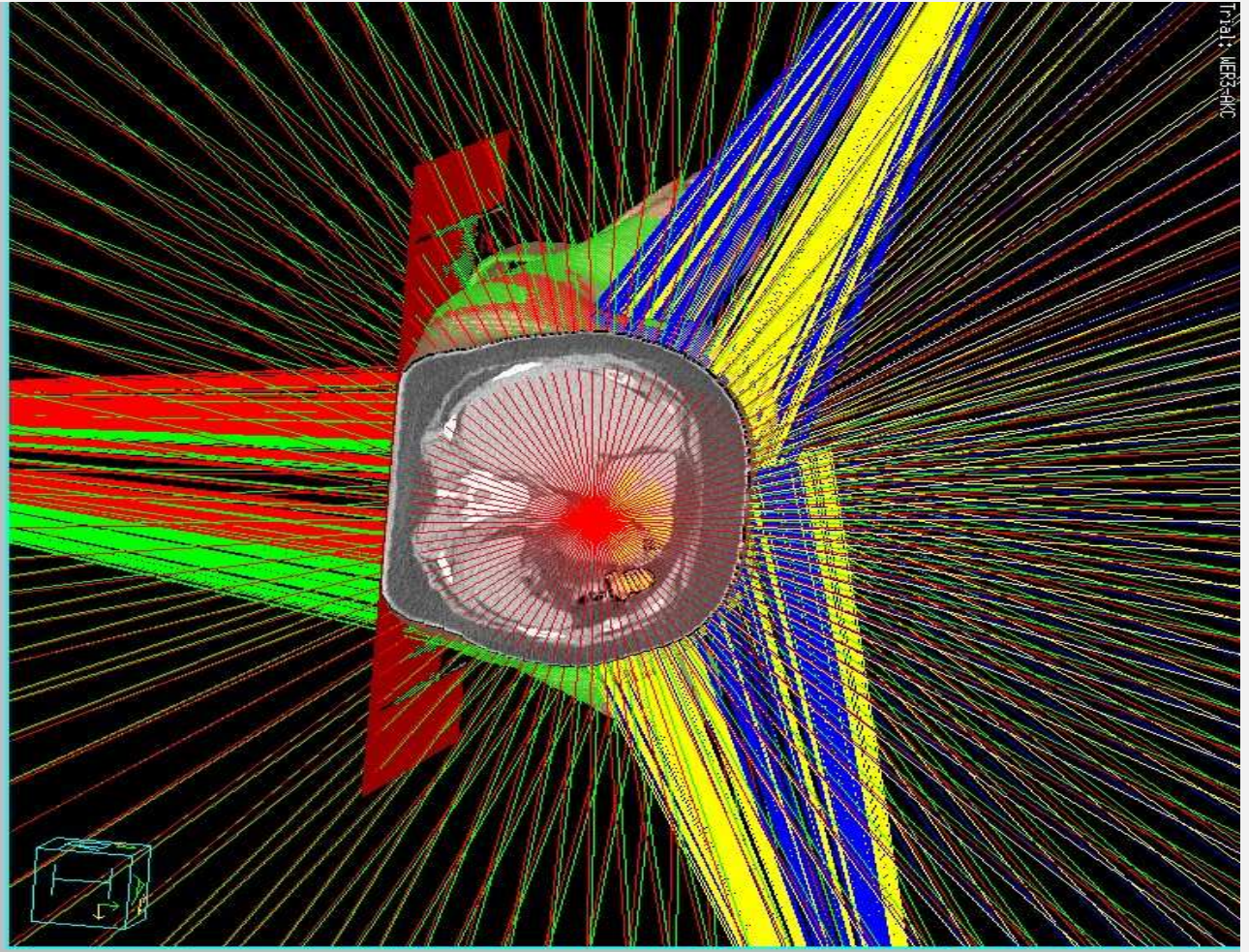
OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



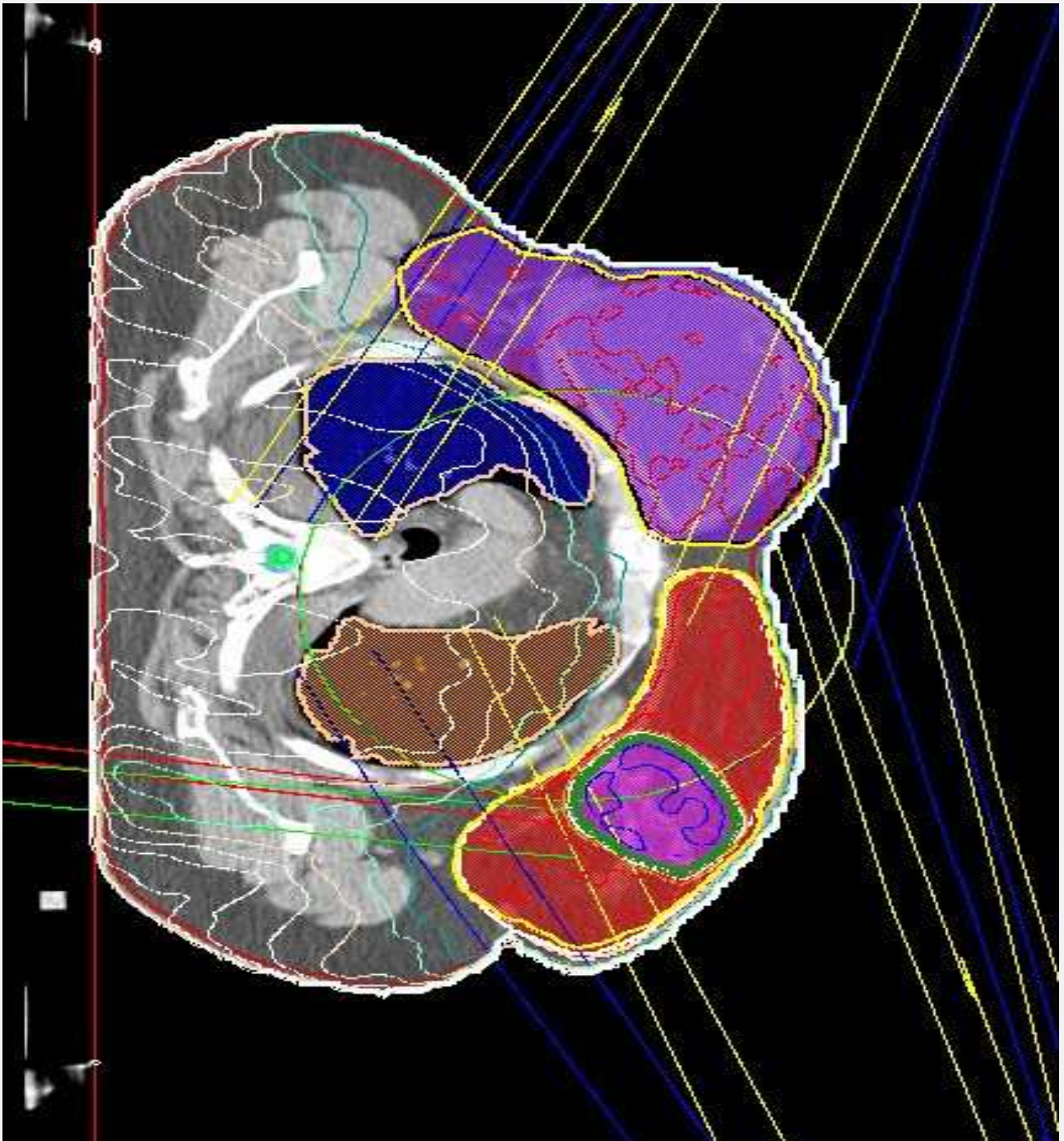
OBRAZY CT WYKORZYSTYWANE DO PLANOWANIA LECZENIA



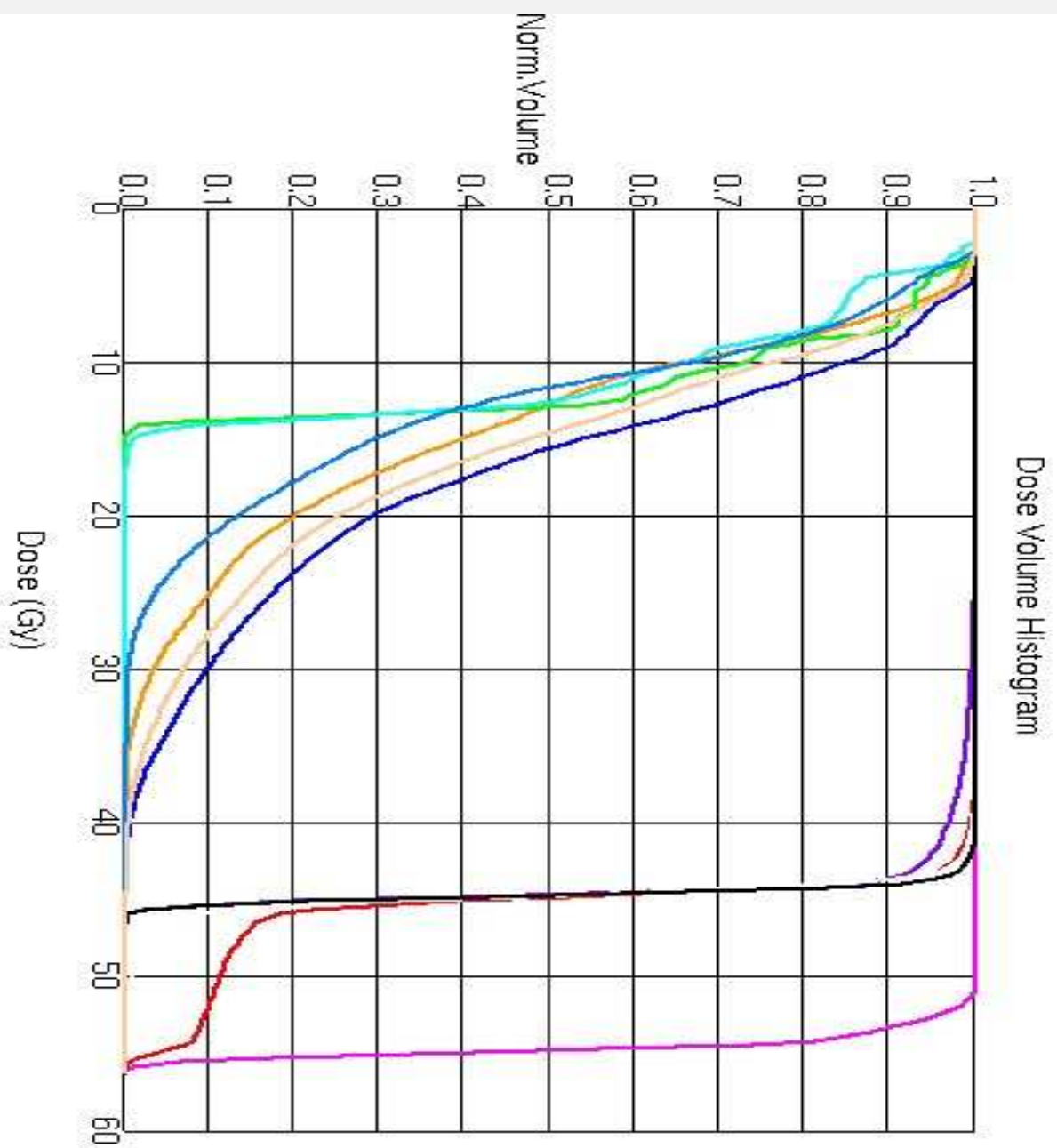
VMAT VOLUMETRIC MODULATED ARC THERAPY



ROZKŁAD DAWKI DLA TECHNIKI VMAT



HISTOGRAM ROZKŁADU DAWKI



ZMIANA OBJĘTOŚCI –
ZMIANA ROZKŁADU
DAWKI

