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Patient-specific in-vivo QA in MRGRT: 3D EPID dosimetry for the Unity MR-linac

Torres Xirau, I.

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Author: Torres Xirau, I.

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P A T I E N T – S P E C I F I C
I N – V I V O Q A I N M R G R T :
3 D E P I D D O S I M E T R Y F O R
T H E U N I T Y M R – L I N A C

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door

*Iban Torres Xirau
geboren te Barcelona in 1987*

Dedication.

A la mama. Per cuidar-nos i estimar-nos tant.

P A T I E N T - S P E C I F I C
I N - V I V O Q A I N M R G R T :
3 D E P I D D O S I M E T R Y F O R
T H E U N I T Y M R - L I N A C

Iban Torres Xirau

*Gepersonaliseerde kwaliteitsbeoordeling door MRGRT-
behandelingen: 3D-dosimetrie met EPID voor de Unity
MR-Linac*

*Avaluació personalitzada de qualitat en tractaments
MRGRT: dosimetria 3D mitjançant EPID per a l'Unity
MR-Linac*

Promotor:

Prof. Dr. U.A. van der Heide

Co-promotor:

Dr. A. Mans (NKI-AvL)

Promotiecommissie:

Prof. Dr. C.R.N. Rasch (LUMC)

Prof. Dr. B.W. Raaymakers (UMC Utrecht)

Dr. V. Hansen (Odense Universitetshospital)

Prof. Dr A. Webb (LUMC)

Prof. Dr. R.L.M. Haas (LUMC)

Dr. N. Jornet Sala (Hospital Sant Pau Barcelona)

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List of abbreviations:

ART	Adaptive radiotherapy
CBCT	Cone-beam computer tomography
CNN	Convolutional neural network
CT	Computed tomography
CTV	Clinical tumor volume
EPID	Electronic portal imaging device
EBRT	External-beam radiotherapy
ERE	Electron return effect
FFF	Flattening filter free
GTV	Gross tumor volume
H&N	Head and neck
IC	Ionization chamber
IMRT	Intensity modulated radiotherapy
ISQL	Inverse square law
DVH	Dose volume histogram
DL	Deep learning
DEEPID	Deep electronic portal imaging device
MLC	Multi-leaf collimator
MRI	Magnetic resonance imaging

MRIGRT	Magnetic resonance Imaging guided Radiotherapy
MU	Monitor unit
MV	Mega voltage
OAR	Organ at risk
PET	Positron emission tomography
PTV	Planning target volume
QA	Quality assessment
QC	Quality control
ReLU	Rectified linear unit
ROI	Region of interest
RT	Radiotherapy
TPS	Treatment planning system
VMAT	Volumetric arc therapy