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- (71) **Applicants:** **RIJKSUNIVERSITEIT GRONINGEN** [NL/NL]; Broerstraat 5, 9712 CP Groningen (NL). **ACADEMISCH ZIEKENHUIS GRONINGEN** [NL/NL]; Hanzeplein 1, 9713 GZ Groningen (NL).
- (72) **Inventors:** **BOTH, Stefan**; Radiotherapy Department, Universitair Medisch Centrum Groningen, Hanzeplein 1, 9713 GZ Groningen (NL). **MARMITT, Gabriel Guterres**; Radiotherapy Department, Universitair Medisch Centrum Groningen, Hanzeplein 1, 9713 GZ Groningen (NL).
- (74) **Agent:** **WITMANS, H.A.**; V.O., P.O. Box 87930, 2508 DH Den Haag (NL).
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(54) **Title:** POSITIONING SYSTEM FOR RADIOTHERAPY

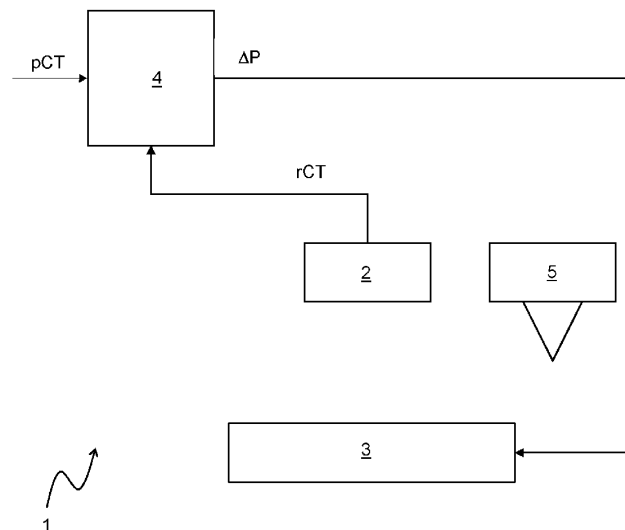


FIG 1

(57) **Abstract:** A system (1) for positioning a patient for radiotherapy in accordance with patient specific data including a first volumetric image (e.g. a pCT image) of the patient comprising tissue label data and dose specification data is provided that comprises an imaging device (2), a positioning device (3) and an optimization controller (4). The imaging device (2) is configured to provide a second volumetric image (e.g. an rCT image) of the patient including a designated part of the patient to be treated. The positioning device (3) is provided to hold the patient in a variable position and/or orientation in the beam of radiation for an accurate intervention to a designated part of the patient. The optimization controller (4) comprises a dose based control module configured to provide registration control data (ΔP) to guide the positioning device (3) so that the actually applied treatment dose optimally matches the planned treatment dose.

[Continued on next page]

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