C L A I M S

1. Radiation facility (1), the radiation facility (1) comprising:

- radiation assembly (2), preferably a proton radiation assembly (2), the radiation assembly (2) comprising:

- a radiation device (3), preferably a proton radiation treatment device (3), wherein the treatment device (3) comprises an accelerator (4), preferably a proton accelerator (4), and a radiation projector (5);

- a radiation device gantry (6), wherein the gantry (6) moveable supports the accelerator (4) and projector (5), such that the accelerator (4) and the projector (5) can in unison be rotated about a horizontal patient treatment axis (12),

wherein the gantry (6) provides a range of movement of the radiation device (3) that defines a cylindrical treatment space (14), extending between a first end (7) and a second opposite end (8), which cylindrical treatment space (14) has the patient treatment axis (12) at its's centre;

wherein the gantry (6) comprises a first slew bearing (9) and a second slew bearing (10) to moveably support the treatment device (3), which slew bearings (9,10) each have a central rotational axis (11) that is aligned with the patient treatment axis (12), and

wherein the first slew bearing (9) has a central opening that defines a treatment space (14) entry port (18) for moving a patient into and out of the treatment space (14)[1];
- multiple patient preparation rooms (17), each for preparing a patient for treatment, preferably for positioning a patient in a treatment position on a patient support (23), which preparation rooms (17) are each provided with a patient transfer port (18); and

- a gantry manipulator (19), configured to position the gantry in a treatment position relative to each of the multiple patient preparation rooms (17), in which treatment position, the treatment space (14) entry port (18) of the gantry (6) is aligned with the patient transfer opening (18) of one of the patient preparation rooms (17), to enable direct transfer of a patient from the one of the preparation rooms (17) into the treatment space (14).

2. Radiation facility (1) according to claim 1, wherein the gantry manipulator (19) comprises:

- a gantry track (20), the gantry track (20) extending along the multiple preparation rooms (17),

- a gantry carriage (21) for transporting the gantry (6) over the transport track (22) along the multiple preparation rooms (17), and

- a drive (27) for moving the gantry carriage (21) along the gantry track (20);

wherein the gantry carriage (21) has a carriage body that extends along a longitudinal axis, which longitudinal axis extends between a first end (7) and an opposite second end (8), and wherein the patient treatment axis (12) extends parallel to the longitudinal axis of the support carriage, and

wherein the carriage (21) is at each end guided by the gantry track (20).

3. Radiation facility (1) according to claim 2, wherein the gantry (6), preferably a treatment housing (13) of the gantry (6), forms the carriage body, preferably such that the first bearing (9) and the second bearing (10) are connected to a guiderail of the track (20), for example via a bogy are supported on a guide rail of the track (20), and the first bearing (9) and the second bearing (10) are connected to each other by a rotatable supported part of the gantry (6), preferably the treatment housing (13), only.

4. Radiation facility (1) according to claim 2 or claim 3, wherein the first end (7) and the opposite second end (8) of the cylindrical treatment space (14) are located at the first end (7) and the second end (8) of the carriage (21) respectively.

5. Radiation facility (1) according to one or more of the claims 2-4, wherein the gantry track (20) is a transport track (22), preferably a horizontal transport track (22), the transport track (22) extending along the multiple preparation rooms (17), wherein the multiple preparation rooms (17) are stacked next to each other preferably with their patient transfer ports (18) in horizontal alignment, along the transport track (22),

wherein the gantry carriage (21) is supported by the transport track (22), for moving the gantry (6) in a horizontal direction along the transport track (22) and the multiple preparation rooms (17).

6. Radiation facility (1) according to claim 5, wherein the gantry track (20) is a circular transport track (22), the transport track (22) extending along the multiple preparation rooms (17), wherein the multiple preparation rooms (17) are set up around a centre of the circular transport track (22).

7. Radiation facility (1) according to claim 5 or claim 6, wherein the cylindrical treatment space (14) has an entry port (18) on each end, and on opposite sides of the gantry track (20) are provided preparation rooms (17), and wherein the gantry track (20) and the gantry carriage (21) are dimensioned such that the when the carriage (21) supports the treatment space (14) with one end in a treatment position relative to a first patient preparation room (17), the opposite end of the treatment space (14) is supported in a treatment position relative to a second patient preparation room (17).

8. Radiation facility (1) according to one or more of the claims2-4, wherein the gantry track (20) is a lift track (28), preferably a vertical lift track (28), the lift track (28) extending along the multiple preparation rooms (17), wherein the multiple preparation rooms (17) are stacked next to each other preferably with their patient transfer ports (18) in vertical alignment, along the lift track (28),

wherein the gantry carriage (21) is guided by the lift track (28), for moving the gantry (6) in a vertical direction along the lift track (28) and the multiple preparation rooms (17), and

wherein the lift track (28) comprises four guide rails, and the gantry carriage (21) is at each end coupled with two guide rails, one on each side of the treatment axis (12).

9. Radiation facility (1) according to one or more of the claims 2-4, wherein the gantry track (20) comprises a horizontal transport track (22) and a vertical lift track (28), and wherein one track is moveably supported by the other track, and the gantry carriage (21) is coupled with the moveable supported track, to enable movement of the gantry along an array of preparation rooms, i.e. multiple preparation rooms (17) stack next to each other and stacked on top of each other.

10. Radiation facility (1) according to claim 9, wherein the transport track (22) supports a lift carriage, which lift carriage comprises a lift track (28), and wherein the gantry carriage (21) is guided by the lift carriage, for moving the treatment device (3) in a vertical direction preferably perpendicular to the transport track (22).

11. Radiation facility (1) according to claim 9 or claim 10, wherein the treatment space (14) has an entry port (18) on each end, and on opposite sides of the gantry track (20) are provided preparation rooms (17), and wherein the gantry track (20) and the gantry carriage (21) are dimensioned such that the when the carriage (21) supports the treatment space (14) with one end in a treatment position relative to a first patient preparation room (17), the opposite end of the treatment space (14) is supported in a treatment position relative to a second patient preparation room (17).

12. Radiation facility (1) according to one or more of the claims 1-11, wherein the gantry manipulator (19) further comprises a gantry housing, the gantry housing enclosing the gantry (6), and being configured to move with the gantry (6), to contain radiation emitted by the treatment device (3).

13. Radiation facility (1) according to one or more of the claims 1-12, wherein the gantry manipulator (19) is provided with a gantry storage, which gantry storage is configured to shield the surroundings from radiation emitted by the radiation device, and wherein the gantry manipulator (19) is configured to position the radiation assembly, i.e. the radiation device gantry (6) and the radiation device, in a storage position in the gantry storage.

14. Radiation facility (1) according to claims 12 and 13, wherein the gantry storage has an entry and exit opening on one side, and wherein the gantry manipulator is provided with a door for said opening, which door preferably is attached to the radiation assembly, such that the door can be moved in unison with the radiation assembly by the gantry manipulator, and such that when the radiation assembly is moved into the storage position, the door is moved in a closing position in which it seals the entry and exit opening of the gantry storage.

15. Radiation facility (1), the radiation facility (1) comprising:

- radiation assembly (2), preferably a proton radiation assembly (2), the radiation assembly (2) comprising:

- a radiation device (3), preferably a proton radiation treatment device (3), wherein the treatment device (3) comprises an accelerator (4), preferably a proton accelerator (4), and a radiation projector (5);

- a radiation device gantry (6), wherein the gantry (6) moveable supports the accelerator (4) and projector (5), such that the accelerator (4) and the projector (5) can in unison be rotated about a horizontal patient treatment axis (12),

wherein the gantry (6) provides a range of movement of the radiation device (3) that defines a cylindrical treatment space (14), extending between a first end (7) and a second opposite end (8), which cylindrical treatment space (14) has the patient treatment axis (12) at its's centre;

wherein the gantry (6) comprises a first slew bearing (9) and a second slew bearing (10) to moveably support the treatment device (3), which slew bearings (9,10) each have a central rotational axis (11) that is aligned with the patient treatment axis (12), and

wherein the first slew bearing (9) has a central opening that defines a treatment space (14) entry port (18) for moving a patient into and out of the treatment space (14)[2];

- multiple patient preparation rooms (17), each for preparing a patient for treatment, preferably for positioning a patient in a treatment position on a patient support (23), which preparation rooms (17) are each provided with a patient transfer port (18); and

- a patient preparation room manipulator, configured to position the multiple patient preparation rooms (17) in a treatment position, in which treatment position, the treatment space (14) entry port (18) of the gantry (6) is aligned with the patient transfer opening (18) of one of the patient preparation rooms (17), to enable direct transfer of a patient from one of the preparation rooms (17) into the treatment space (14).

16. Radiation facility (1) according claim 15, wherein the patient preparation room manipulator comprises:

- a patient preparation room track, the patient preparation room track extending along the gantry,

- a patient preparation room carriage for transporting the multiple patient preparation rooms over the transport track along the gantry (6), and

- a drive for moving the patient preparation room carriage along the patient preparation room track;

wherein the multiple patient preparation rooms are transported over the transport track along the gantry for allowing the multiple patient preparation rooms to be placed in the treatment position.

17. Radiation facility (1) according to claim 16, wherein the patient preparation room track is a transport track, preferably a horizontal transport track, the transport track extending along the gantry (6), wherein the multiple preparation rooms (17) are stacked next to each other preferably with their patient transfer ports (18) in horizontal alignment, along the transport track, and

wherein the patient preparation room carriage is supported by the transport track, for moving the patient preparation rooms (17) in a horizontal direction along the transport track and the gantry (6).

18. Radiation facility (1) according to one or more of the claims 15-17, wherein the cylindrical treatment space (14) has an entry port (18) on each end, and wherein multiple patient preparation rooms are provided at both ends of the cylindrical treatment space,

wherein the patient preparation rooms comprises a first group of patient preparation rooms at a first of the both ends and a second group of patient preparation rooms at a second of the both ends,

wherein the preparation rooms of the first group are supported by a first patient preparation room manipulator, preferably comprising a first transport track, and wherein the patient preparation rooms of the second group are supported by a second patient preparation room manipulator, preferably comprising a second transport track,

wherein the first patient preparation room manipulator is configured to position each of the patient preparation rooms of the first group in a treatment position, in which treatment position, the treatment space entry port of the gantry (6) at the first end is aligned with the patient transfer opening (18) of one of the patient preparation rooms (17) of the first group , to enable direct transfer of a patient from the preparation room (17) into the treatment space (14); and

wherein the second patient preparation room manipulator is configured to position each of the patient preparation rooms of the second group in a treatment position, in which treatment position, the treatment space entry port of the gantry (6) at the second end is aligned with the patient transfer opening (18) of one of the patient preparation rooms (17) of the second group, to enable direct transfer of a patient from the preparation room (17) into the treatment space (14).

19. Method for moving a gantry (6) comprising a treatment device (3), wherein the treatment device (3) comprises an accelerator (4), preferably a proton accelerator (4), and a radiation projector $(5)^3$, from a first treatment position adjacent a first preparation room (17) to a second treatment position adjacent a second preparation room (17), using a gantry manipulator (19) of a radiation facility (1) according to one or more of the claims 1-14.

20.Method for moving the patient support table from one of the preparation rooms of the first group into the treatment space of the gantry of the radiation facility (1) according to claim 18, the method comprising;

- use the first patient preparation manipulator (19) to move the preparation room of the first group into the treatment position at the first end of the gantry, in which treatment position the preparation room (17) is adjacent to the gantry,
- moving the patient support table from a first preparation room of the second group of preparation rooms, which first preparation room is located in the treatment position at the second end of the gantry, out of the treatment space via the treatment space entry port at the second end of the gantry (6),
- moving the patient support table of the preparation room of the first group into the treatment space via the treatment space entry port at the first end of the gantry (6);
- using the second patient preparation manipulator (19) to move the first preparation room out of the treatment position and to simultaneously move a second preparation room of the second group into the treatment position at the second end of the gantry.