CLAIMS

1. A method (100) for controlling ~~a~~ the propulsive power output applied to ~~a~~ the propeller shaft (6) of ~~a~~ the ship (2) in ~~a~~ the system (10) according to any of the claims 13 -21, the ship (2) and the system (10) comprising the propeller shaft (6) and ~~a~~ the propulsive power source (4) connected to the propeller shaft (6), wherein

the method (100) comprises steps of:

- applying (102) ~~a~~ the control signal to the propulsive power source (4),

- producing (104) with the propulsive power source (4) a propulsive power in correspondence with the control signal,

- varying (106) the control signal within ~~an~~ the interval limited by ~~an~~ the upper control limit value and ~~a~~ the lower control limit value, the step of varying (106) the control signal within the interval limited by the upper and lower control limit values being performed when the ship (2) travels,

characterised in that the method (100) comprises steps of:

- determining (108) ~~a~~ the current value of ~~an~~ the operational parameter of the ship (2),

- comparing (110) the current value of the operational parameter with ~~a~~ the first parameter limit value, and wherein

if the current value of the operational parameter reaches the first parameter limit value, the method (100) comprises a step of:

- reducing (112) the upper control limit value.

2. The method (100) according to claim 1, wherein subsequent to the step of reducing (112) the upper control limit value the method (100) comprises steps of:

- determining (120) a subsequent current value of the operational parameter of the ship (2),

- comparing (122) the subsequent current value of the operational parameter with the first parameter limit value and/or a third parameter limit value, wherein

if the subsequent current value of the operational parameter reaches the first parameter limit value, the method (100) comprises a step of:

- further reducing (124) the upper control limit value, or wherein

if the subsequent current value of the operational parameter stays clear of the third parameter limit value, the method (100) comprises a step of:

- increasing (126) the upper control limit value.

3. The method (100) according to claim 1 or 2, comprising an optional step of:

- determining (114) a current value of a further operational parameter of the ship (2), wherein

the method (100) comprises steps of:

- comparing (116) the current value of the operational parameter or the current value of the further operational parameter with a second parameter limit value, wherein

if the current value of the operational parameter or the current value of the further operational parameter reaches the second parameter limit value, the method (100) comprises a step of:

- increasing (118) the lower control limit value.

4. The method (100) according to claim 3, wherein subsequent to the step of increasing (124) the lower control limit value the method (100) comprises steps of:

- determining (128) a subsequent current value of the operational parameter of the ship (2) or a subsequent current value of the further operational parameter of the ship (2),

- comparing (130) the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter with the second parameter limit value and/or a fourth parameter limit value, wherein

if the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter reaches the second parameter limit value, the method (100) comprises a step of:

- further increasing (132) the lower control limit value, or wherein

if the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter stays clear of the fourth parameter limit value, the method (100) comprises a step of:

- reducing (134) the lower control limit value.

5. The method (100) according to any one of the preceding claims, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to a load characteristic of the propeller shaft (6).

6. The method (100) according to any one of the preceding claims, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to ambient conditions affecting the ship (2).

7. The method (100) according to any one of the preceding claims, wherein the propulsive power source (4) comprises an internal combustion engine (14) connected to the propeller

shaft (6), and wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to the internal combustion engine (14).

8. The method (100) according to claim 7, wherein the internal combustion engine (14) comprises at least one cylinder arrangement (50) and a turbocharger (52), wherein

the cylinder arrangement (50) comprises a combustion chamber (54), a cylinder bore (56), a piston (58) configured to reciprocate in the cylinder bore (56), a gas inlet (60) connected to the combustion chamber (54), and a gas outlet (62) connected to the combustion chamber (54), wherein

the gas outlet (62) is connected to a turbine (64) of the turbocharger (52) and the gas inlet (60) is connected to a compressor (66) of the turbocharger (52), and wherein

the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to the turbocharger (52), and/or to the cylinder arrangement (50).

9. The method (100) according to claim 8, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to one of:

- a rotational speed of the turbocharger (52),
- a temperature at the inlet at the turbine (64) of the turbocharger (52),
- a temperature at an outlet at the turbine (64) of the turbocharger (52),
- a pressure at the outlet at the compressor (66) of the turbocharger (52),

10. The method (100) according to claim 8, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to one of:

- a temperature of the cylinder arrangement (50), or
- a pressure within the combustion chamber (54).

11. The method (100) according to claim 8, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to one of:

- an absolute value of a derivative of the rotational speed of the turbocharger (52),
- a variation of an amplitude of the rotational speed of the turbocharger (52),
– an absolute value of a derivative of the pressure at the outlet at the compressor (66) of the turbocharger (52),
- a variation of an amplitude of the pressure at the outlet at the compressor (66) of the turbocharger (52).

12. The method (100) according to any one of the preceding claims, wherein the operational parameter of the ship (2) and/or the further operational parameter of the ship (2) relates to a cargo load characteristic affecting cargo (40) aboard the ship (2).

13. A system (10) for controlling a propulsive power output applied to a propeller shaft (6) of a ship (2), the system (10) comprising the propeller shaft (6), a propulsive power source (4), and a control arrangement (12), wherein

the control arrangement (12) comprises at least one control unit (16), wherein

the control arrangement (12) is configured to:

- apply a control signal to the propulsive power source (4) for controlling the power output applied to the propeller shaft by the propulsive power source (4), wherein

the control signal is variable within an interval limited by an upper control limit value and a lower control limit value, and wherein

the control signal is variable within the interval limited by the upper and lower control limit values when the ship travels,

characterised in that

the control arrangement (12) comprises at least one sensor (18) for sensing at least one operational characteristic of the ship (2),

the control arrangement (12) is configured to:

- determine a current value of an operational parameter of the ship (2) utilising the at least one sensor (18),

- compare the current value of the operational parameter with a first parameter limit value, wherein

if the current value of the operational parameter reaches the first parameter limit value, the control arrangement (12) is configured to:

- reduce the upper control limit value.

14. The system (10) according to claim 13, wherein the control arrangement (12) is configured to:

- determine a subsequent current value of the operational parameter of the ship (2) utilising the at least one sensor (18),

- compare the subsequent current value of the operational parameter with the first parameter limit value and/or a third parameter limit value, wherein

if the subsequent current value of the operational parameter reaches the first parameter limit value, the control arrangement (12) is configured to:

- further reduce the upper control limit value, or wherein

if the subsequent current value of the operational parameter stays clear of the third parameter limit value, the control arrangement (12) is configured to:

- increase the upper control limit value.

15. The system (10) according to claim 13 or 14, wherein the control arrangement (12) is optionally configured to:

- determine a current value of a further operational parameter of the ship (2) utilising the at least one sensor (18), wherein

the control arrangement (12) is configured to:

- compare the current value of the operational parameter or a current value of the further operational parameter with a second parameter limit value, wherein

if the current value of the operational parameter or the current value of the further operational parameter reaches the second parameter limit value, the control arrangement (12) is configured to:

- increase the lower control limit value.

16. The system (10) according to claim 15, wherein the control arrangement (12) is configured to:

- determine a subsequent current value of the operational parameter of the ship (2) or a subsequent current value of the further operational parameter of the ship (2),

- compare the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter with the second parameter limit value and/or a fourth parameter limit value, wherein

if the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter reaches the second parameter limit value, the control arrangement (12) is configured to:

- further increase the lower control limit value, or wherein

if the subsequent current value of the operational parameter or the subsequent current value of the further operational parameter stays clear of the fourth parameter limit value, the control arrangement (12) is configured to:

- reduce the lower control limit value.

17. The system (10) according to any one of claims 13 - 16, wherein the at least one sensor (18) for sensing at least one operational characteristic of the ship (2) is configured for sensing a characteristic related to ambient conditions affecting the ship (2).

18. The system (10) according to any one of claims 13 - 17, wherein the at least one sensor (18) for sensing at least one operational characteristic of the ship (2) is configured for sensing a characteristic related to a load affecting to the propeller shaft (6).

19. The system (10) according to any one of claims 13 - 18, wherein the at least one sensor (18) for sensing at least one operational characteristic of the ship (2) is configured for sensing a characteristic related to a cargo load affecting cargo aboard the ship (2).

20. The system (10) according to any one of claims 13 - 19, wherein the propulsive power source (4) comprises an internal combustion engine (14) connected to the propeller shaft (6), wherein the internal combustion engine (14) comprises at least one cylinder arrangement (50) and a turbocharger (52), wherein

the cylinder arrangement (50) comprises a combustion chamber (54), a cylinder bore (56), a piston (58) configured to reciprocate in the cylinder bore (56), a gas inlet (60) connected to the combustion chamber (54), and a gas outlet (62) connected to the combustion chamber (54), wherein

the gas outlet (62) is connected to a turbine (64) of the turbocharger (52) and the gas inlet (60) is connected to a compressor (66) of the turbocharger (52), and wherein

the at least one sensor (18) for sensing at least one operational characteristic of the ship (2) is configured for sensing a parameter of the turbocharger (52), and/or of the cylinder arrangement (50).

21. The system (10) according to claim 20, wherein the at least one sensor (18) comprises:

- a rotational speed sensor of the turbocharger (52),
- pressure sensor of the turbocharger (52),
- temperature sensor of the turbocharger (52),
- temperature sensor of the cylinder arrangement (22),
- a pressure sensor of the combustion chamber (54).

22. A ship (2) comprising a system according to any one of claims 13 – 21.

23. A computer program comprising instructions which, when the program is executed by a computer, cause the computer to carry out the steps of the method (100) according to any one of claims 1 - 12.

24. A computer-readable storage medium (90) comprising instructions which, when executed by a computer, cause the computer to carry out the steps of the method (100) according to any one of claims 1 - 12.