Claims:

1. A system for launching a projectile towards a target, the system comprising:

a control circuitry, a booster engine, and one or more thrusters adapted to be connected to the projectile and capable of being spun during launch around a longitudinal axis of the projectile,

the control circuitry being operatively connected to the one or more thrusters;

wherein responsive to ignition of propellant stowed in a combustion chamber of the booster engine, the booster engine is configured to launch the projectile; wherein ignition of the propellant, initiates a sequential execution of a first burning phase, a second burning phase and a third burning phase; wherein during the first burning phase the projectile is ejected from a cell and wherein thrust generated during the second burning phase is lower than the thrust generated during the first and the third burning phases;

the control circuitry is configured to activate during a second burning phase the one or more thrusters; wherein upon the activation, the projectile begins to turn in a certain deflection azimuth that is dependent on a timing of activation.

2. The system of claim 1, wherein during the first burning phase the projectile is ejected from a cell the one or more thrusters to are spun around a longitudinal axis of the projectile; wherein the control circuitry is configured to activate the one or more thrusters according to the activation timing, wherein the activation timing is calculated according to a desired deflection azimuth.

3. The system of any one of claims 1 and 2, wherein activation of the one or more thrusters is executed according to a selected activation profile, wherein the activation profile is selected according to a desired deflection angle of a velocity vector of the projectile.

4. The system of claim 3, wherein the activation profile comprises data indicative, for each one of the one or more thrusters, a respective spin-cycle for activation.

5. The system of any one of claims 3 to 4, wherein the activation profile defines for a specific combination of one or more thrusters, activation timing of each thruster relative to activation timing of a first thruster.

6. The system of any one of claims 2 to 5, wherein the control circuitry is configured to calculate the activation timing of the one or more thrusters, based on data including: initial angular position of at least one thruster, spin rate and a position of the target.

7. The system of any one of the preceding claims, wherein the one or more thrusters include two or more thrusters and wherein the control circuitry is further configured, following activation of a first thruster, to update a respective activation timing of one or more additional thrusters, according to the actual deflection azimuth and deflection angle rate, resulting from one or more previous activations of thrusters.

8. The system of any one of claims 2 to 7, further comprises an off-board processing circuitry, external to the projectile, configured to calculate an activation timing of at least one thruster of the one or more thrusters, based on data including: direction of the target and a nominal spin rate of the projectile and nominal thrust of the one or more thrusters.

9. The system of any one of claims 2 to 8, wherein the cell is designed with a spiral groove along its internal surface and the projectile comprises a pin attached to its body; wherein the projectile is stored in the cell with the pin positioned within the groove and upon launch, the projectile is pushed out of the cell while the pin situated in the groove causing the projectile to spin around its longitudinal axis.

10. The system of any one of claims 2 to 8, wherein the one or more thrusters are installed in a thrusters-belt fixed to the projectile in a manner allowing the belt to spin freely around the projectile and wherein spinning of the belt is executed by any one of:

a. an onboard spinning mechanism operatively connected to the belt;

b. a pin attached to the belt which is situated within a spiral grooved disposed along an internal surface of the cell, wherein upon launch, the projectile is pushed out of the cell and the pin and the spiral groove cause the belt to spin around its longitudinal axis.

11. The system of any one of the preceding claims, wherein thrust generated during the second burning phase is at least two times lower than the thrust of a first burning phase.

12. The system of any one of the preceding claims, wherein a duration of thrust generated by any one of the one or more thrusters is shorter than duration of a thruster spin-cycle.

13. The system of any one of the preceding claims, wherein one or more thrusters comprise a plurality of thrusters and wherein the control circuity is further configured following activation of a first thruster of the plurality of thrusters to:

measure real-time data including deflection azimuth and/or deflection angel rate; compare the measured real-time data with an expected data; in case a deviation between measured data and expected data is identify, update thruster activation parameters to rectify the deviation.

14. A method of launching a projectile towards a target, the method comprising:

in response to a command to launch the projectile towards a target:

igniting propellant stowed in a combustion chamber of the projectile; wherein ignition of the propellant initiates a sequential execution of a first burning phase, a second burning phase and a third burning phase; wherein during the first burning phase the projectile is ejected from a cell and wherein thrust generated during the second burning phase is lower than the thrust generated during the first burning phase and the third burning phases;

ejecting, during the first burning phase, the projectile out of a cell in a manner that causes one or more thrusters fixed to the projectile, to spin around a longitudinal axis of the projectile;

activating, during the second burning phase, the one or more thrusters; wherein the one or more thrusters are fixed to the projectile such that upon an activation of the one or more thrusters, the projectile begins to turn in a certain deflection azimuth.

15. The method of claim 14 further comprising, activating the one or more thrusters according to the activation timing, wherein the activation timing is calculated according to a desired deflection azimuth.

16. The method of any one of claims 14 and 15 further comprising: selecting an activation profile according to a desired deflection angle of velocity vector of the projectile; and activating the one or more thrusters according to the selected activation profile.

17. The method of claim 16, wherein the activation profile defines for a specific combination of one or more thrusters an activation timing of each thruster relative to the activation timing of a first thruster.

18. The method of any one of claims 15 to 17, further comprising: calculating the activation timing of the one or more thrusters, based on data including: an initial angular position of at least one thruster, spin rate of the projectile and a position of the target.

19. The method of any one of claims 14 to 18, wherein the one or more thrusters include two or more thrusters and wherein the method further comprising:

following activation of a first thruster, updating a respective activation timing of one or more additional thrusters, according to the actual deflection azimuth and deflection angle rate, resulting from one or more previous activations of one or more thrusters.

20. The method of any one of claims 15 to 19 further comprising: maintaining the projectile in the cell having a spiral groove along its internal surface while a pin attached to a body of the projectile is positioned within the groove, thereby causing the projectile to spin around its longitudinal axis upon launch.

21. The method of any one of claims 14 to 20, wherein the projectile includes a thrusters-belt comprising the one or more thrusters being fixed to the projectile in a manner allowing the belt to spin freely around the projectile separate from the projectile's body, the method further comprising:

maintaining the projectile in the cell having a spiral groove along its internal surface while a pin attached to a body of the projectile is positioned within the groove, thereby causing the belt to spin around its longitudinal axis upon launch.

22. The method of any one of claims 15 to 19, wherein the one or more thrusters are installed in a thrusters-belt fixed to the projectile in a manner allowing the belt to spin freely around the projectile separate from a projectile body; the method further comprising: activating a spinning mechanism onboard the projectile operatively connected to the belt thereby causing the belt to spin.

23. The method of any one of claims 14 to 22, wherein a duration of thrust generated by any one of the one or more thrusters is shorter than duration of a thruster spin-cycle.

24. The method of any one of claims 14 to 23, wherein one or more thrusters comprise a plurality of thrusters, the method further comprising following activation of a first thruster of the plurality of thrusters:

measuring real-time data including deflection azimuth and/or deflection angel rate; comparing the measured real-time data with an expected data; in case a deviation between measured data and expected data is identify, updating thruster activation parameters to rectify the deviation.

25. A projectile comprising a control circuitry, a booster engine, and one or more thrusters adapted to be connected to the projectile and capable of being spun during launch around a longitudinal axis of the projectile, the control circuitry being operatively connected to the one or more thrusters;

wherein responsive to ignition of propellant stowed in a combustion chamber of the booster engine, the booster engine is configured to launch the projectile; wherein ignition of the propellant initiates a sequential execution of a first burning phase, a second burning phase and a third burning phase; wherein during the first burning phase the projectile is ejected from a cell and wherein thrust generated during the second burning phase is lower than thrust generated during the first and the third burning phases;

the control circuitry is configured to activate during a second burning phase the one or more thrusters; wherein upon the activation the projectile begins to turn in a certain deflection azimuth that is dependent on a timing of activation.

26. A statically stable projectile comprising the system according to any one of claims 1 to 13.