Claims:

1. A bonding wire, comprising:
a core with a surface,
wherein the core comprises aluminium as a main component, and
the core contains scandium as a component in an amount between 0.05% and 1.0 % and at least 30% of the scandium in the core is present in a phase separate to the aluminium main component and wherein the phase is an intermetallic phase comprising mainly $Al_3Sc$.

2. Wire according to claim 1, wherein the core contains between 0% and 0.5% of silicon.

3. Wire according to any of the preceding claims, wherein a total of components of the core other than aluminium and scandium is between 0% and 1.0%.

4. Wire according to any of the preceding claims, wherein the core contains at least one selected from the group comprising copper and nickel in an amount between 10 ppm and 100 ppm.

5. Wire according to any of the preceding claims, wherein the wire has a conductivity of at least $32.0*10^6$ $Ohm^{-1}*m^{-1}$.

6. Wire according to claim 1, wherein at least two thirds of a total number of crystallites of the intermetallic phase have a diameter of less than 25 nm.

7. Wire according to any of the preceding claims, wherein the wire has a diameter in the range of 80 µm to 600 µm.

8. Wire according to any of the preceding claims, wherein the wire has a diameter in the range of 8 µm to 80 µm.

9. System for bonding an electronic device, comprising a first bonding pad, a second bonding pad and a wire according to any of the preceding claims,

wherein the wire is connected to at least one of the bonding pads by means of wedge-bonding.

10. System according to claim 9, wherein a structure underlying the bonding pads comprises at least one layer of porous silicon dioxide.

11. Method for manufacturing a bonding wire according to any of claims 1 to 8, comprising the steps in sequence of
a. providing an aluminium core precursor with the demanded content of scandium; and
b. homogenization of the core precursor, wherein the homogenization comprises heating of the core precursor to a homogenization temperature of at least 550 °C for a defined time, wherein the heating is followed by a rapid cooling at a rate of at least 10 K per second; and
c. drawing and/or rolling the precursor until a final diameter of the wire core is reached.

12. Method according to claim 11, wherein the heating is followed by a rapid cooling at a rate of at least 10 K per second.

13. Method according to claim 11 or claim 12, comprising the step of precipitation hardening of the wire.

## Claims:

1. A bonding wire, comprising:
a core with a surface,
wherein the core comprises aluminium as a main component, and
the core contains scandium as a component in an amount between 0.05% and 1.0 % and at least 30% of the scandium in the core is present in a phase separate to the aluminium main component, wherein the phase is an intermetallic phase comprising mainly $Al_3Sc$, wherein at least two thirds of a total number of crystallites of the intermetallic phase have a diameter of less than 25 nm, and wherein the wire has a diameter in the range of 80 µm to 600 µm or in the range of 8 µm to 80 µm.

2. Wire according to claim 1, wherein the core contains between 0% and 0.5% of silicon.

3. Wire according to any of the preceding claims, wherein a total of components of the core other than aluminium and scandium is between 0% and 1.0%.

4. Wire according to any of the preceding claims, wherein the core contains at least one selected from the group comprising copper and nickel in an amount between 10 ppm and 100 ppm.

5. Wire according to any of the preceding claims, wherein the wire has a conductivity of at least $32.0*10^6$ $Ohm^{-1}*m^{-1}$.

6. System for bonding an electronic device, comprising a first bonding pad, a second bonding pad and a wire according to any of the preceding claims, wherein the wire is connected to at least one of the bonding pads by means of wedge-bonding.

7. System according to claim 6, wherein a structure underlying the bonding pads comprises at least one layer of porous silicon dioxide.

8. Method for manufacturing a bonding wire according to any of claims 1 to 5, comprising the steps in sequence of

a. providing an aluminium core precursor with the demanded content of scandium; and

b. homogenization of the core precursor, wherein the homogenization comprises heating of the core precursor to a homogenization temperature of at least 550 °C for a defined time, wherein the heating is followed by a rapid cooling at a rate of at least 10 K per second; and

c. drawing and/or rolling the precursor until a final diameter of the wire core is reached,

wherein the method comprises a step of precipitation hardening of the wire.