l　液体原料はヘリウムにて圧送し、微少流量液体マスフローコントローラでモル濃度比を正確に制御可能なこと。
m　気化器は圧力の高いキャリアガスとそれぞれの液体原料が霧化混合し、気化器ノズル部まで霧化状態が維持されること。
n　液体原料を気化する気化器は、液体原料中の溶媒が気化し気化器ノズル部に堆積物が堆積するのを防ぐため、気化器流路の外部および内部を冷却可能なこと。
o　液体原料、固体原料、ガス供給、気化ガス供給、シャワーヘッド、排気部、およびそれらを接続する配管は、付着物防止のため、50℃以上に加熱可能なこと。
p　プロセスガス供給は、酸素、窒素、ヘリウム、アルゴンが可能なこと。
q　原料供給系、気化器系、シャワーユニットは、原料交換時まで最低1,000時間以上はメンテナンスフリーのこと。
r　本装置の操作は、タッチパネルによる操作とすること。
s　成膜プロセスレシピはタッチパネルで設定でき、10レシピ以上設定可能なこと。
t　各種バルブ・流量操作等は、タッチパネル操作によるマニュアル操作でも可能なこと。
u　装置異常時は、タッチパネル上に表示とともにアラームが鳴ること。
v　装置に物理的に押下できる非常停止ボタンを設置すること。

B　真空ポンプ
a　プロセスチャンバの真空ポンプはドライポンプとし、Ｎ２換算で排気量10,000Ｌ／min以上であること。
b　ロードロックチャンバの真空ポンプはドライポンプとし、Ｎ２換算で排気量1,000Ｌ／min以上のこと。

C　除害システム
a　ＰＺＴ成膜に使用する原料Pb（ＤＭＡＭＰ）２、Zr（ＭＭＰ）４、Ti（ＭＭＰ）４を吸着式にて除害可能なこと。また、異種材料を成膜時には、別途吸着材の交換で対応可能な機能を有すること。
b　除害装置の異常は、Ａ．ＭＯＣＶＤ装置本体側タッチパネルに表示するとともに、アラームが鳴ること。

2　資料及びコメントの提供方法　上記１⑵の物品に関する一般的な参考資料及び同⑸の要求要件等に関するコメント並びに提供可能なライブラリーに関する資料等の提供を招請する。
⑴　資料等の提供期限　平成24年２月16日17時00分（郵送の場合は必着のこと。）
⑵　提供先　〒980―8577　仙台市青葉区片平２－１－１　東北大学財務部資産・調達管理課調達管理第二係長　樋口　秀樹　電話022―217―4869

3　説明書の交付　本公表に基づき応募する供給者に対して導入説明書を交付する。
⑴　交付期間　平成24年１月16日から平成24年２月16日まで。
⑵　交付場所　上記２⑵に同じ。

4　その他　この導入計画の詳細は導入説明書による。なお、本公表内容は予定であり、変更することがあり得る。

5　Summary
⑴　Classification of the products to be procured : 24
⑵　Nature and quantity of the products to be purchased : MOCVD System 1 Set
⑶　Type of the procurement : Purchase
⑷　Basic requirements of the procurement :

A　MOCVD main system
a　This system should achieve deposition on several wafers of 20 ㎜ x 20 ㎜ size, 2, 3, 4, 5 and 6 inch wafer by using suitable SiC susceptor for each wafer size. This system should accept 8 inch wafer in future by parts replacing in the process chamber and the load lock chamber.
b　This system should have the load lock chamber which can be opened to the atmosphere. The SiC susceptor carrying wafer should be able to be transferred to the process chamber in reduced pressure by being set in the load lock chamber.
c　Transfer of the SiC susceptor into the process chamber should be achieved by electric control.
d　The process chamber should be able to be baked at equal to or more than 250 ℃.
e　The heating temperature of the SiC susceptor in the process chamber should be able to arbitrarily be set at, including the range from 300 to 700 ℃, of which accuracy should be equal to or better than ± 2 ℃. The maximum temperature should be able to be equal to or more than 800 ℃.
f　The pressure in the process chamber should be automatically controlled by valves. The process pressure should be able to arbitrarily be set at, including the range from 0.5 to 8 Torr (67 - 1,064 Pa), of which accuracy should be equal to or better than ± 1 Pa.
g　The exhaust ability of process gases should be equal to or more than 3 SLM in Ar or N2 gas flow rate.
h　The achieved pressure in the process chamber should be equal to or less than 0.05 Torr (7Pa).
i　Inlet gases to the chamber should be uniformly supplied to the entire susceptor by utilizing a shower head on the chamber cover.
j　This system should simultaneously accept equal to or more than 4 source materials, which is liquid source or solid source.
k　The solid source material should be dissolved and liquefied with the solvent and be pumped by He gas. The molar concentration ratio of the solid source material and the solvent should be controlled by a liquid mass flow controller accurately.
l　The liquid source material should be pumped by He gas. The molar concentration ratio should be controlled by a liquid mass flow controller accurately.
m　A carrier gas with high pressure and each liquid source materials should be mixed and atomized by a vaporizer, and the atomization should be maintained until the nozzle of the vaporizer.
n　The inside and the outside of flow path of vaporizer should be able to be cooled to prevent deposition at the nozzle of the vaporizer due to evaporation of a solvent in the liquid source material.
o　The liquid source materials, the solid source materials, the gas supply, the evaporation gas supply, the shower head, the exhaust outlet, and the piping that connects those items should be able to be heated at equal to or more than 50 ℃ to prevent material adhesion.
p　The supplying gases should be O2, N2, He and Ar.
q　The material supply system, the vaporizer system, and the shower head should not require maintenance for equal to or more than 1,000 hours.
r　This system should be operated by utilizing a touch panel.
s　More than or equal to 10 process recipes should be set with the touch panel.
t　The operation of the valves, setting of flow should be manually carried out with the touch panel.
u　This system should give an alarm sound and a display on the touch panel when it is abnormal state.
v　This system should have an emergency stop button that can be physically pressed.

B　Vacuuming pumps
a　The vacuuming pump of the process chamber should be a dry pump, of which pumping speed should be more than or equal to 10,000 L ／ min in N2 gas flow rate.
b　The vacuuming pump of the load lock chamber should be a dry pump, of which pumping speed should be more than or equal to 1,000 L ／ min in N2 gas flow rate.